Textile World
SEPTEMBER, 1957
McGRAW-HILL PUBLICATION
Man-Made-Fiber Table—p. 101
Measure Management Performance—p. 121
Processing Irrigated Cotton—p. 140
Textile Business Section—p. 17

MEMO *to finishers!..*

PERMA SET 330

a methylated urea-formaldehyde resin which imparts a crisp, resilient finish on synthetic fabrics like rayon, nylon, orlon, acetate and combinations. It can be used to give embossed and glazed finishes.

PERMA SET 440

a cyclic urea formaldehyde resin developed for application of wrinkle-resistant and shrinkage-controlled finishes to cotton fabrics. It imparts a full, resilient effect with excellent resistance to chlorine retention. It is used in producing embossed, glazed, shreinered and calendered finishes.

PERMA SET 500 C

a new type thermosetting resin which is used to stabilize rayon and rayon blends and to improve their hand.

PERMA SET 750

a methylated urea-formaldehyde resin which is used to give nylon, acetate and other synthetic fabrics durable stiffness and body. It is recommended for use on nylon nets, marquisettes and shoe fabrics.

WRITE FOR
TECHNICAL SERVICE BULLETINS

Manufacturing Chemists

Refined PRODUCTS CORPORATION

Lyndhurst • New Jersey

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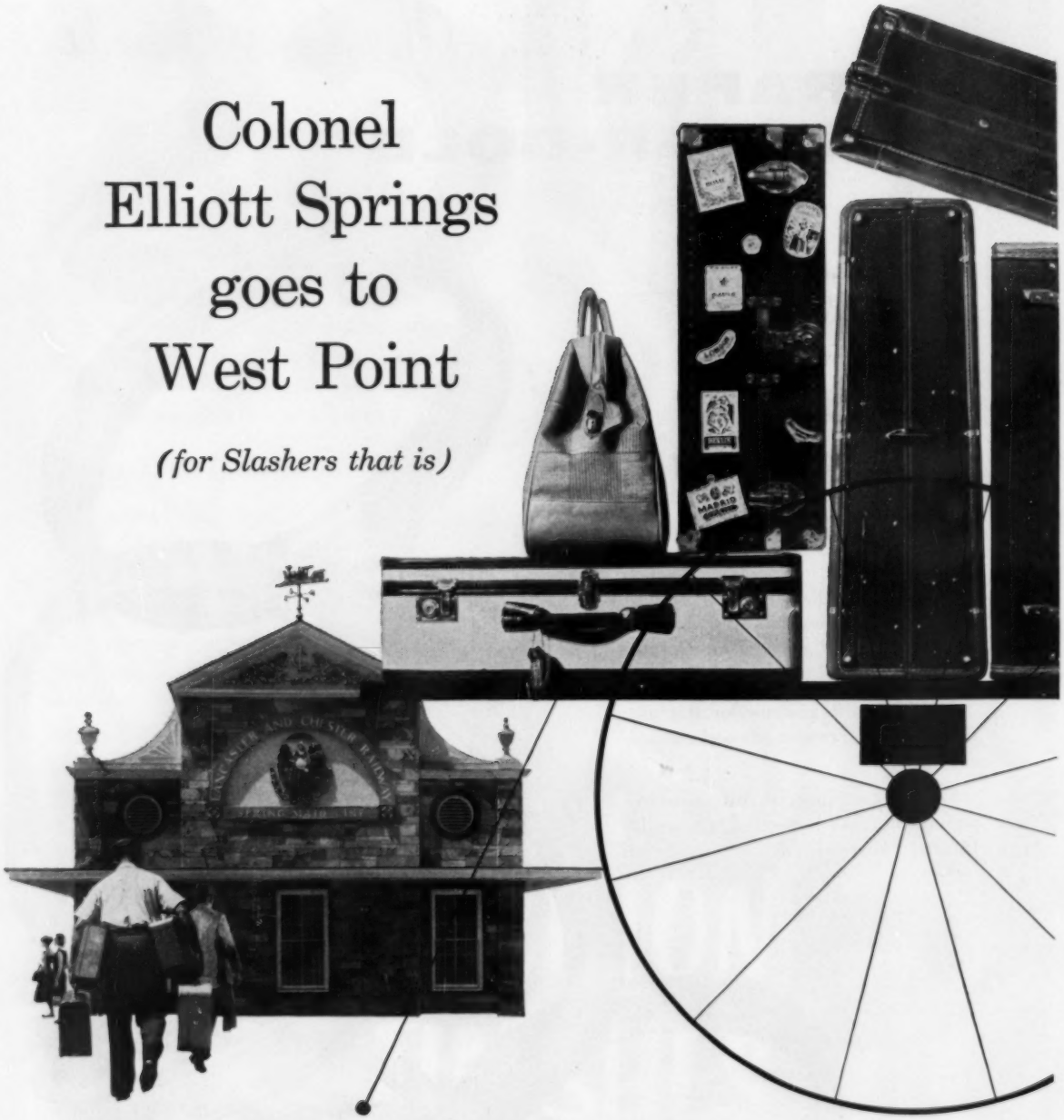
Colonel Elliott Springs goes to West Point

(for Slashers that is)



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You have a choice with West Point Foundry. West Point makes both MULTI-CYLINDER and AIR-DRI® slashers.

WEST POINT Foundry & Machine Company

WEST POINT, GEORGIA

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CALENDAR

September

Fiber Society, Textile Institute, joint meeting, Hotel Statler, Boston, Mass., Sept. 4 to 6.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Sept. 11.

AATCC, Southeastern Section, Harmony Club, Columbus, Ga., Sept. 14.

Textile Quality Control Association, fall meeting, Barrington Hotel, Charlotte, N. C., Sept. 19 & 20.

AATCC, South Central Section, Hotel Patton, Chattanooga, Tenn., Sept. 20.

Northern Textile Association, annual meeting, Wentworth-By-The-Sea, Portsmouth, N. H., Sept. 25 & 26.

Combed Yarn Spinners Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 26 & 27.

AATCC, Delaware Valley Section, New York Section, Trenton, N. J., Sept. 27.

Carded Yarn Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 27 & 28.

AATCC, Piedmont Section, Hotel Barringer, Charlotte, N. C., Sept. 28.

Textile Operating Executives of Georgia, fall meeting, Hightower Textile Building, Georgia Institute of Technology, Atlanta, Ga., Sept. 28.

October

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Oct. 2.

Chemical Finishing Conference, National Cotton Council of America, Statler Hotel, Washington, D. C., Oct. 2 & 3.

Southern Textile Methods & Standards Association, fall meeting, Clemson House, Clemson, S. C., Oct. 10 & 11.

Alabama Textile Operating Executives, fall meeting, Thach Auditorium, Auburn, Ala., Oct. 12.

American Society for Testing Materials, Committee D-13, fall meeting, Sheraton-McAlpin Hotel, New York, N. Y., Oct. 15 to 18.

AATCC, Rhode Island Section, Providence Engineering Society, Providence, R. I., Oct. 24.

AATCC, Mid-West Section, Bismarck Hotel, Chicago, Ill., Oct. 26.

National Industrial Packaging & Handling Exposition, Convention Hall, Atlantic City, N. J., Oct. 28 to 31.

November

AATCC, Delaware Valley Section, Sheraton Hotel, Philadelphia, Pa., Nov. 1.

AATCC, Western New England Section, annual meeting, Hartford, Conn. area, Nov. 1.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Nov. 6.

Electrical Applications for the Textile Industry, Sixth Annual Conference, Riddick Laboratory Auditorium, North Carolina State College, Raleigh, N. C., Nov. 14 & 15.

AATCC, national convention, Hotel Statler, Boston, Mass., Nov. 14 to 16.

December

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Dec. 4.

AATCC, Rhode Island Section, annual meeting, Providence, R. I., Dec. 5.

AATCC, Delaware Valley Section, Kugler's Restaurant, Philadelphia, Pa., Dec. 6.

AATCC, Northern New England Section, annual meeting, Hotel Continental, Cambridge, Mass., Dec. 6.

AATCC, Southeastern Section, Dinkler Plaza Hotel, Atlanta, Ga., Dec. 7.

AATCC, Western New England Section, Rapp's Restaurant, Shelton, Conn., Dec. 13.

SUBSCRIPTIONS are solicited only from executives, engineers, and technicians in textile manufacturing or finishing plants. Position and company connection must be indicated on subscription order. Single copies $1.00. Subscription rates: United States and Possessions and Canada, $2.00 a year; all other countries, $15.00 a year. Second-class mail privileges authorized at Albany 1, N. Y. Printed in U. S. A. Annual index in January issue.

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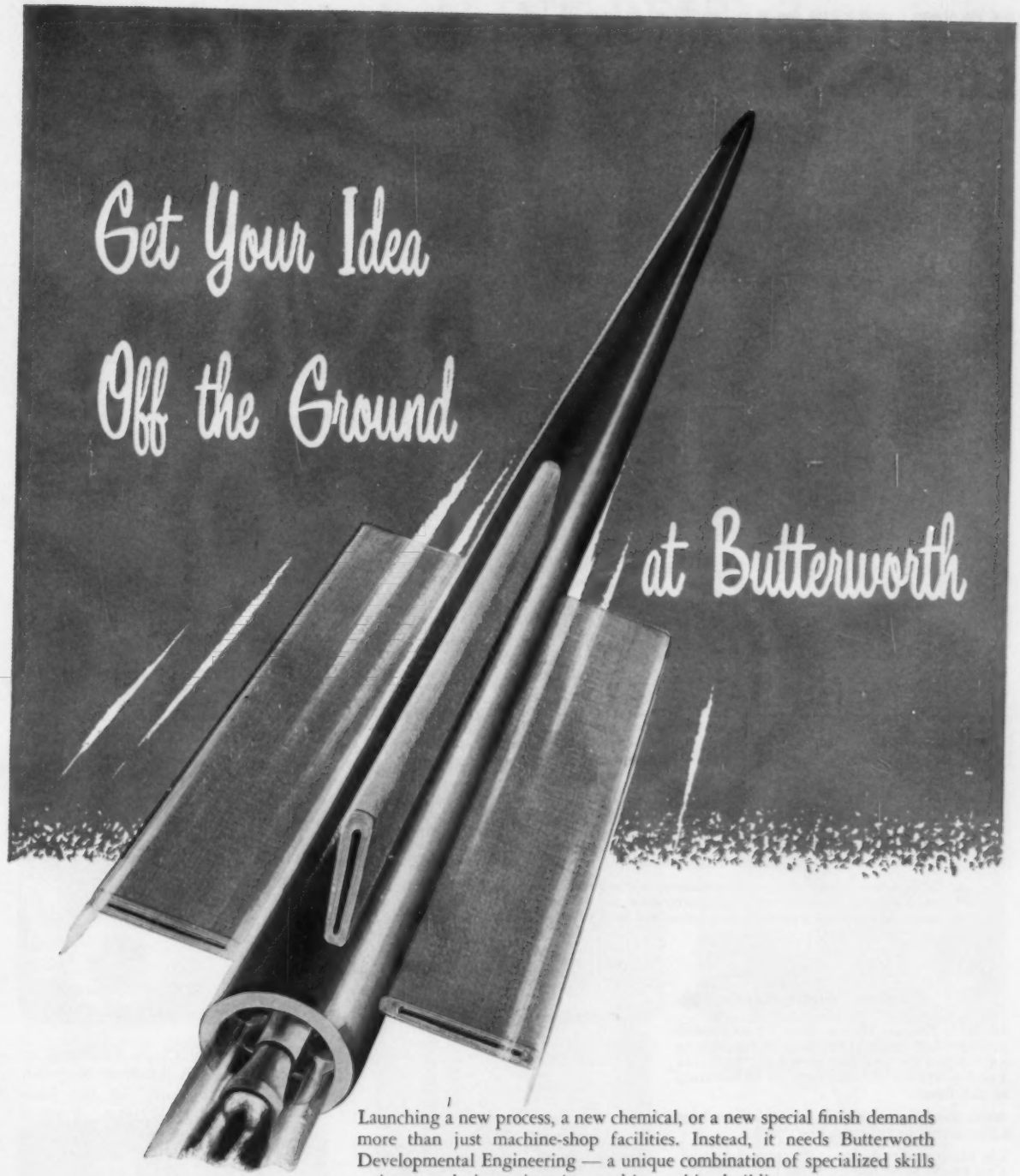
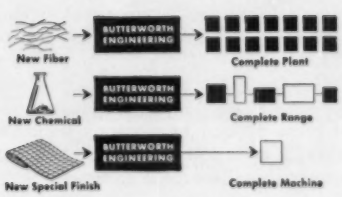


Launching a new process, a new chemical, or a new special finish demands more than just machine-shop facilities. Instead, it needs Butterworth Developmental Engineering — a unique combination of specialized skills . . in research, in engineering, and in machine-building.

Specialized machines designed and built by Butterworth are now being used at almost every step in the manufacture of textiles — from the spinning of fibers to dyeing, bleaching and finishing. And among Butterworth's standard products are 84 diversified machines for textile finishing. So if your idea is still on the ground, let Butterworth get it airborne for you . . in complete secrecy . . from blueprint to production line.



Developmental Engineering • Research • Machine Building

H. W. BUTTERWORTH & SONS CO.

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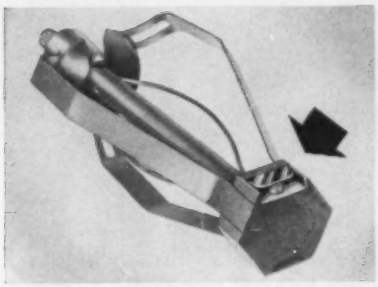
HOW McBRIDE COMPONENTS CAN MODERNIZE OLDER CREELS

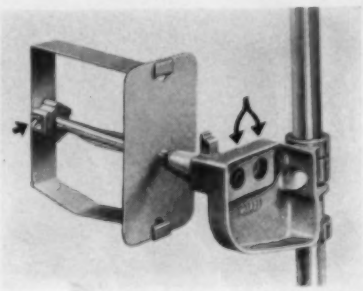
Now you can have modern, low-cost creels without the capital investment necessary to purchase complete new creel units. McBride creel components give high quality production even on older creels.

HERE ARE THE LATEST DEVELOPMENTS:



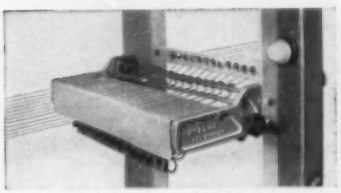
McBRIDE QUIK-CHANGE CONE HOLDER

Quik-Change Cone Holder. Fits over bowed spring spindle—accommodates complete range of cone tapers.



McBRIDE QUIK-CHANGE LARGE DIAMETER TUBE OR PIRN HOLDER

Famous McBride Swing Arm Assembly fits any 7/8" diameter upright. This assembly has recently been redesigned for even greater rigidity and strength.

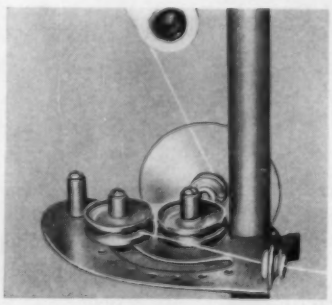


Instant-Stop. Sealed mercury switch gives instant positive action on all yarns from 12 denier nylon to tire cord, etc. Cast-out of individual ends by switch control.

Stop-motion indicating lights provide 3-way control: satisfactory operation—LIGHT OFF, broken end—LIGHT ON, drawing-in position—LIGHT BLINKING. New switching system lights only the light at bank where broken end occurs.

Stop Motion in operating position. Colored button controlling entire bank is on: 3 individual switches controlling 3 drop wires on off position for 3 inactive ends. Note cast-out ends may remain threaded through drop wires.

McBRIDE TENSION-MASTER



McBride Tension-Master. New 3 post tension provides full range of tensions. Adaptable to any diameter upright member, McBride Tension-Master permits yarn to be evenized at the beam.

Write today for details on how to adapt these components to your existing creels.

Let McBride Study Your Warping Situation. You Might Be Surprised With The Costs You Can Save, The Improved Quality In The Warps You Produce.

CREELS for every purpose, CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS. COMPLETE ENGINEERING SERVICE IS PART OF EVERY McBRIDE INSTALLATION.

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Letters From Readers

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinions appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

CLOTH WEIGHT IS CORRECTED

Dear Editor:

In your March Issue on page 106 you give a table of five conveyor-belting ducks. Shouldn't the weight of No. 4 be about 21.9 oz. instead of 29.1 oz. as printed? This weight would be more in line with its gauge of 0.058 in. and its nylon filling.

F. T. ORGILL
Sales Representative
Du Pont Co. of Canada (1956) Ltd.
Toronto, Ontario

[The author has rechecked the table and gives the correct weight of the duck in question as 20.5 oz. per sq. yd.—EDITOR]

METHODS OF SETTING JOBLOADS ARE NOT BASICALLY DIFFERENT

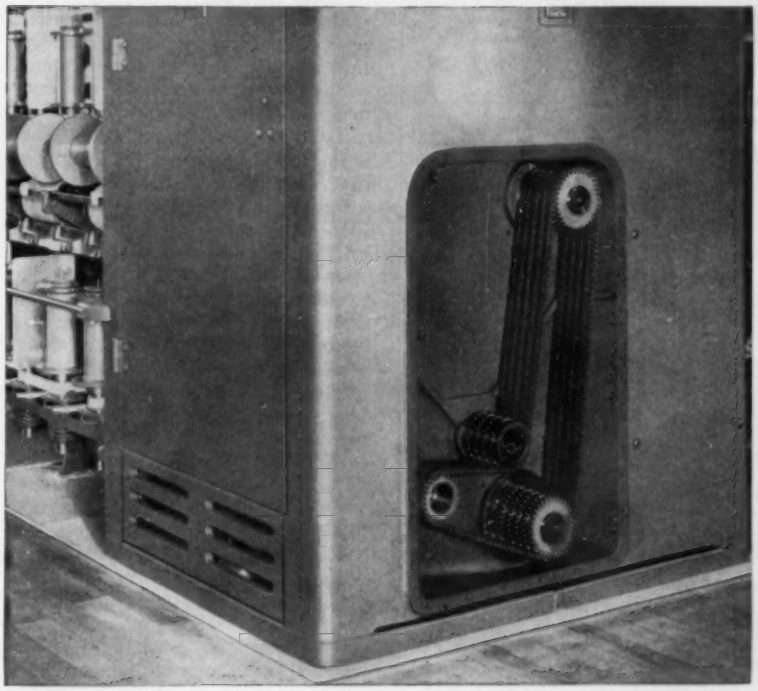
Dear Editor:

We were very much interested in the letter "Here's Another Way To Set Weaver Jobloads" in the June issue of TEXTILE WORLD. I must point out that the description given by the correspondent of some aspects of setting a jobload for weavers does not differ as basically from the Barnes method as he apparently thinks.

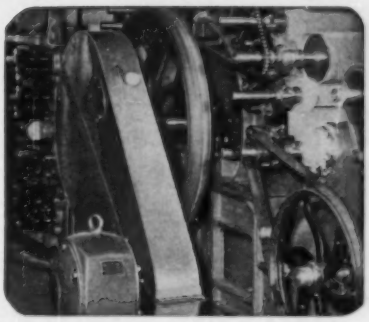
If a loom operates at a speed of 166.67 ppm., the unit basis of 10,000 picks will be exactly equivalent to the unit basis of Producing Loom Hour (PLH).

He describes the actual workload calculation as "Machine time per 10 M picks divided by weaver's standard minutes gives the number of looms a weaver should be able to tend." We

Here's the record of LINK-BELT silent chain



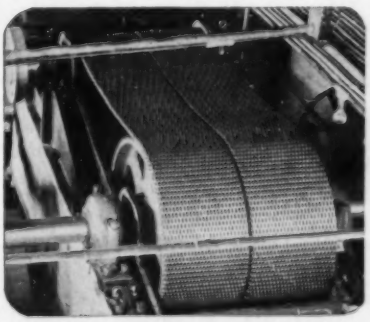
How do your drives compare?



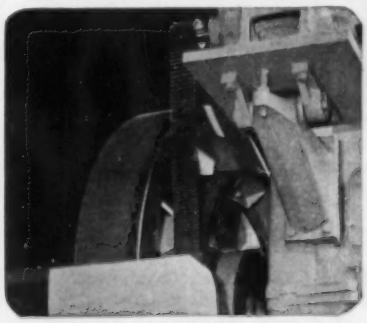
. . . REVERSE ROTATION OF SHAFTS. Link-Belt duplex silent chain — capable of driving from either side of chain — operates multiple shafts on this uptwister.

On fixed center drives, proper chain tension can be maintained with automatic or manual adjusters.

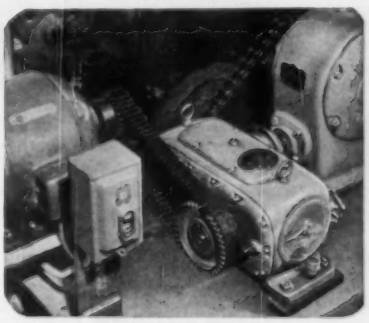
. . . UNDER ADVERSE OPERATING CONDITIONS. Humidity, heat, cold do not lower this chain's better than 98% efficiency.



. . . AT LARGE OR SMALL HP. A versatile line, these drives are available from fractional to thousands of hp.



. . . WITH LARGE RATIOS. Operates efficiently on extremely short centers at ratios as high as 10-to-1.



. . . IN LIMITED SPACE. Easy to assemble in close quarters, silent chain permits built-in drives, compact housings.

. . . AT HIGH SPEEDS. After 13 years on this newspaper press at speeds up to 4700 fpm, silent chain is still efficient.

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LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

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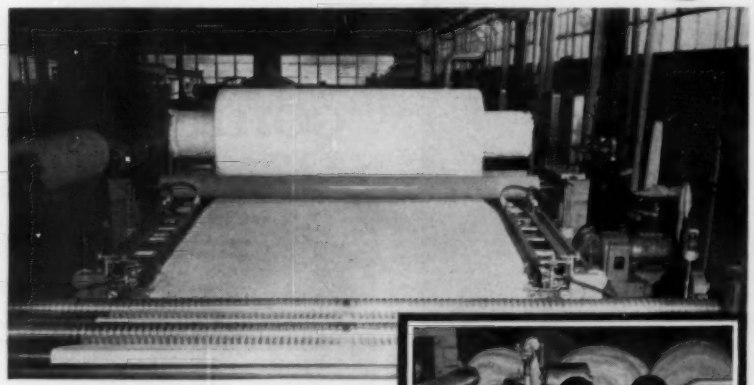
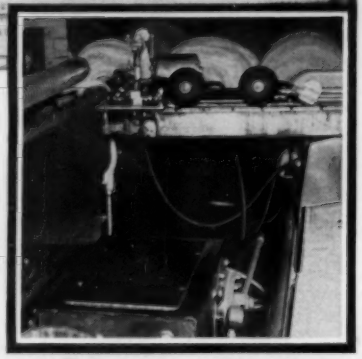
Askania Regulator Company NEWS

AUTOMATIC CLOTH GUIDES FOR TENTER FRAMES, TENTER BATCHERS, LABEL MARKERS, TUBERS AND EXAMINERS



ASKANIA CLOTH GUIDE ASSURES UNIFORM DYEING

Applied to
McCreary-Burlington Tenter Batcher
at Milco Undergarment



Accurate control of batcher roll winding is essential to uniform dyeing

Askania Cloth Guide Controls, installed on *McCreary-Burlington* Tenter Batchers lay the cloth on the pins with consistent accuracy at the Milco Undergarment Co. plant in Bloomsburg, Pa. The guide accurately positions the entrance rails so that at the exit end any fabric, in any width, is wound at uniform, controlled tension into a compact, uniformly-wound roll, permitting the highest accuracy in the dyeing process.

ACCURACY • SPEED • VERSATILITY • ECONOMY • SIMPLE INSTALLATION and MAINTENANCE

ASKANIA Cloth Guide Controls can be installed on new or existing equipment. It automatically handles any cloth including flimsy lace, delicate silks, coarse mesh cloth, synthetics, *without contact with the cloth.*

NEW ASKANIA REGULATOR APPLICATION BULLETIN

Bulletin No. 22.1 provides the full information, including application diagrams and illustrations you need to determine cloth guide control potentials in your own plant.

For instance, you'll find the answers to these questions.

1. How ASKANIA Cloth Guides assure clipping, pinning closer to the selvage.
2. How the Cloth Guide can be quickly and easily installed on new or existing machines by any competent mill mechanic.
3. Why the Cloth Guide reacts to the flimsiest material with instant speed and powerful force.
4. How you can improve quality and efficiency in many finishing mill operations.

WRITE FOR YOUR COPY TODAY TO ASKANIA REGULATOR COMPANY, 274 E. Ontario Street, Chicago 11, Illinois.

ASKANIA REGULATOR COMPANY
"CONTROLS FOR INDUSTRY"
HYDRAULIC, ELECTRONIC CONTROLS & SERVOS, GENERAL SYSTEMS, ENGINEERING & COMPUTER SERVICE, VALVE ACTUATORS & CYLINDERS

A SUBSIDIARY OF GPE

are assuming that weaver's standard minutes represents scheduled working time per loom per 10 M picks and includes personal and fatigue allowances. But we don't understand how machine time per 10 M picks is determined without taking production efficiency into consideration.

The machine time per 10 M picks is interpreted to mean the length of time, in minutes, that is required for a loom to produce 10 M picks. Naturally this time will vary according to the efficiency related to the operation of the loom. To perform the calculation otherwise, that is, to determine machine time per 10 M picks on the basis of standard loom speed alone, would simply result in a figure representing the theoretical number of looms operating at 100% that a weaver should be able to tend.

The basic purpose of the workload calculation is to determine the proper assignment for operators under normal or average conditions. These conditions are established, in the majority of instances, on the basis of factual data supplied by study and calculation. A very limited amount of data is established by projection for elements that are impossible to predetermine on the basis of current operations.

The most important element that falls into this category is that of interference or, in the case of weaving, "Wait weaver's attention." A number of mathematical tables have been introduced as methods to predetermine interference. We have been unable to utilize these data with consistent success and rely upon known facts together with analysis of information previously acquired.

RICHARD B. MITCHELL
Vice President
Barnes Textile Associates, Inc.
Boston, Mass.

TWISTED YARNS IN COATED FABRICS

Dear Editor:

We want to compliment you on the interesting series of articles about industrial fabrics.

One of the articles states that the tear strength of coated fabrics may be greatly increased by using twistless yarns. We agree with you but think the weak tear strength has another physical cause that can be remedied by weaving the fabric in another way.

After studying the matter very thoroughly, we have patented a weaving method that allows the use of normally twisted yarns and guarantees a greatly increased tear strength of the fabric in both its coated and uncoated state.

MORE THAN 2½ MILLION SPINDLES NOW EQUIPPED WITH ROBERTS HIGH DRAFT

ROBERTS SPINNING NEWS

PUBLISHED BY ROBERTS COMPANY SANFORD, NORTH CAROLINA

VOL. 12 SANFORD, NORTH CAROLINA NO. 3

ALL THREE LINES IN TOP ROLL SUSPENSION USE BALL BEARINGS

The Roberts Ball Bearing Top Roll Suspension System uses double-row ball bearings in front, middle and back lines and incorporates many other important design advantages.

Cots have ½" hole diameter, revolve together making lap removal simpler, and are buffed on standard equipment, without attachments. Full length revolving clearers are used.

Front and back rolls are interchangeable making sequence buffing possible.

The double-row bearing raceways are ground directly into ½" shafts. Bearings are grease-packed for life and a 2-piece labyrinth seal protects them from lint entrance and from roll picker damage.

The system has controlled self-alignment. Conventional deadweighting or new spring weighting is optional.

An alternate arrangement also available employs a ball bearing top roll and special suspension on the front line only with Roberts Cap Bars and solid top rolls on middle and back top rolls.

Roberts also continues to offer its No-Oil Cap Bar and Saddle system for all three lines, now installed in more than 2½ million spindles.

SPINNING MODERNIZATION AT LOWEST COST

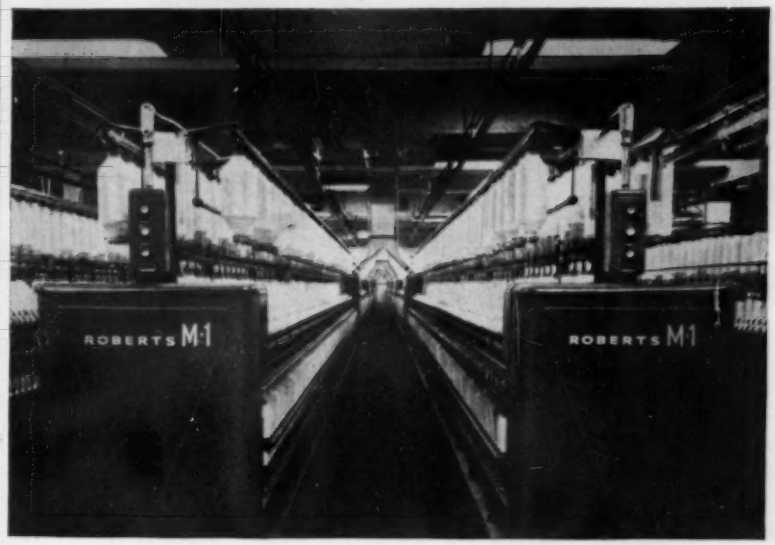
The cost-cutting, performance, and quality features of Roberts Spinning can be obtained through changeovers to the mills' existing spinning frames, or through rebuilt frames supplied by Roberts, as well as Roberts M-1 Spinning Frames.

Changeovers can include drafting systems, spindles, creels, suction cleaning, tape drive, gearing, or any combination of these to provide the maximum return for minimum expenditures.

Roberts Model 55-R Rebuilt Frames provide complete new spinning performance making use only of non-functional support members of older frames, thus affecting a substantial saving.

Roberts M-1 Spinning Frames are excitingly new from the ground up, with all-ball-bearing features. They are available in 39-inch, 36-inch, and the space-saving 25-inch widths.

ROBERTS SPINNING FRAMES SET TODAY'S STANDARD FOR PRODUCTION, YARN QUALITY AND INVESTMENT



Roberts Spinning is setting today's standard for comparison in high drafts, package sizes, roving bobbin sizes, front roll speeds, ends up, yarn break factor – and at the lowest investment cost per spindle.

The Roberts M-1 Spinning Frame is simple and straightforward, free from radical innovations or gadgets. Its design has already been tried and proven in many successful applications. It embodies all the ball bearing features most wanted in a modern frame, giving highest production and lowest maintenance.

Roberts Double-Apron Drafting produces highest break factors, best yarn evenness and lowest ends down in a range of drafts from 10 to 60, for yarn numbers from 2's to 100's, in cotton, synthetics with staples up to 3 inches long, or blends.

Large package flexibility is an important feature. One basic model of the Roberts M-1 Spinning Frame is adapted to run warp bobbins with lengths from 10 inches to 12 inches as well as filling quills. Standard gauges from 3 inches to 4½ inches can be arranged to employ the maximum desirable ring size suitable for the yarn number and twist constant.

The frame chassis is of rugged construction. The working motions use ball bearings for every turning and oscillating motion where practical. The all-ball-bearing head design is outstanding in its simplicity and flexibility.

All gears in the head are hardened and have one pitch, one width, one bore and one keyway, making them completely interchangeable. Greased-for-life bearings are used in the head and all plain bearings and studs are eliminated. Draft and lay constants are adjusted simply over the complete range of yarn numbers.

Standard equipment includes Roberts Ball Bearing Spindles, Roberts built-in UnitVac Suction Cleaning. Roberts AeroCreels are available in every desired package size, single or double.

For more data, write this page number on Reader-Service card. →

MODERN DYEHOUSE EQUIPMENT

THE DEPENDABLE KWG SKEIN DYEING MACHINE

KWG Double Reel Skein Dyeing Machine —all stainless steel unit built in capacities to 1000 pounds.

FOR QUALITY DYEING
WITHIN INCREASED BUT MORE NORMAL TEMPERATURE and PRESSURE LIMITS

Perfection in dyeing—for natural and the new synthetic fibers—is yours with KWG Skein Dyeing machines. Rugged construction . . . improved **'Ferris-Wheel' performance . . . give you the penetration and evenness of color**—the permanence of tone—for that extra measure of sales appeal—without concern for costly high-temperature, high-pressure methods. Dual-operations possible including scouring, dyeing and shrink-proofing, or scouring, bottom bleaching and dyeing of pastel shades.

You can point the way to extra sales . . . extra profits . . . today by writing Klauder Weldon Giles. A KWG representative will be glad to survey your needs. If necessary, he'll design special equipment to your specifications. There's no obligation.

Klauder Weldon Giles MACHINE COMPANY

ADAMS AVENUE & LEIPER STREET • PHILADELPHIA 24, PA.

This invention has opened many new possibilities for untearable coated fabrics in Europe.

V. Synco

Ronse, Belgium

WOOL IMPORTS— A THREAT TO NATIONAL SECURITY?

Dear Editor:

The article in your July issue headed "Woolen and Worsted Mills Accomplish Little with ODM" reveals little, if any, familiarity with Section 7, the national security provision of the Trade Agreements Extension Act of 1955, or with the case this Association made before the Office of Defense Mobilization.

Under Section 7, NAWM petitioned ODM to investigate our belief that wool textile imports threaten to impair national security. If the ODM director finds that they do, he so certifies to the President. If the President agrees, after investigation, he then can adjust imports so they no longer threaten security.

The ODM hearing June 3 and 4 resulted from our petition of March, 1956. Our three main points were: (1) Past experience shows an adequate wool textile industry is essential to security; (2) The industry has contracted by about 50% since 1946 to a point where there is doubt that it could meet mobilization needs; (3) Imports have contributed to the con-

CONTINUED ON PAGE 221

OUR COVER

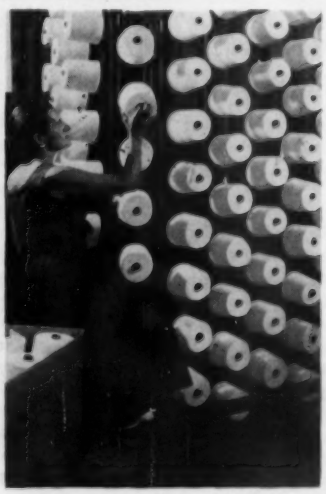
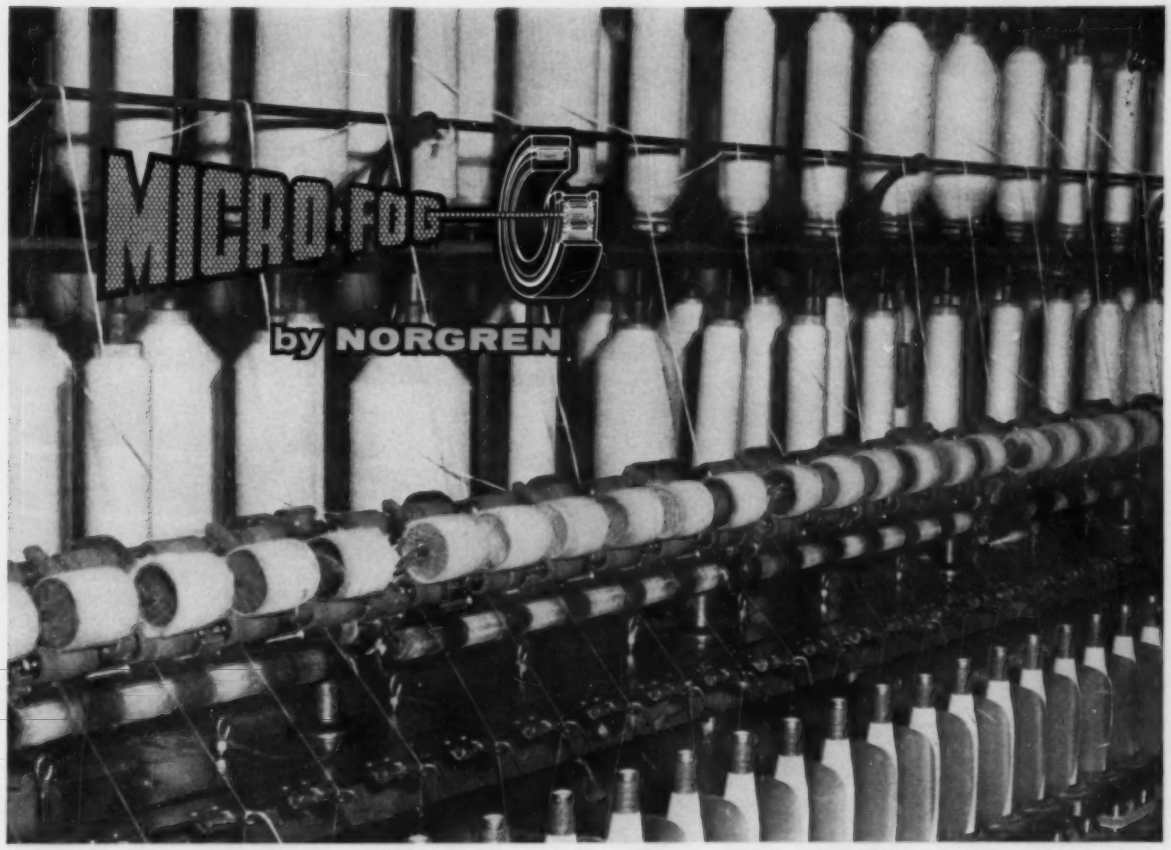


Photo by Coxe Studios
Greenville, S. C.

See Man-Made-Fiber Table Page 101

← For more data, circle this page number on card at back



AUTOMATIC *Air-Borne* LUBRICATION

FOR ALL ELEMENTS OF A TEXTILE MACHINE

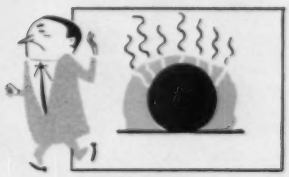
How Much Oil is REALLY Needed to Lubricate?

The only oil that lubricates is the thin film that separates the metal surfaces. Any additional lubricant is a waste and may even be harmful, causing over-heating due to fluid friction. With intermittent systems, there may be periods when there is not enough oil—and metal wears against metal.

Norgren MICRO-FOG Provides Optimum Lubrication

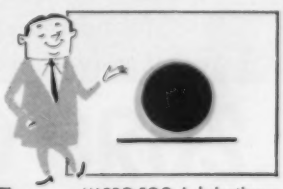
One MICRO-FOG Lubricator automatically coats all the bearings, gears, chains and other components of a machine with a continuous, protective film of fresh oil. Just the right amount of oil—no more, no less—is continuously applied to provide the most efficient lubrication, reducing wear on machine components and cutting maintenance and replacement costs.

For complete information, call your nearby Norgren Representative listed in your telephone directory—or WRITE FACTORY FOR NEW NO. 800 CATALOG.



TOO MUCH OIL—
Hot bearings due to fluid friction.

TOO LITTLE OIL—
Bearings run hot, wear excessively.



MICRO-FOG Lubrication—
Always just the right amount of fresh oil.

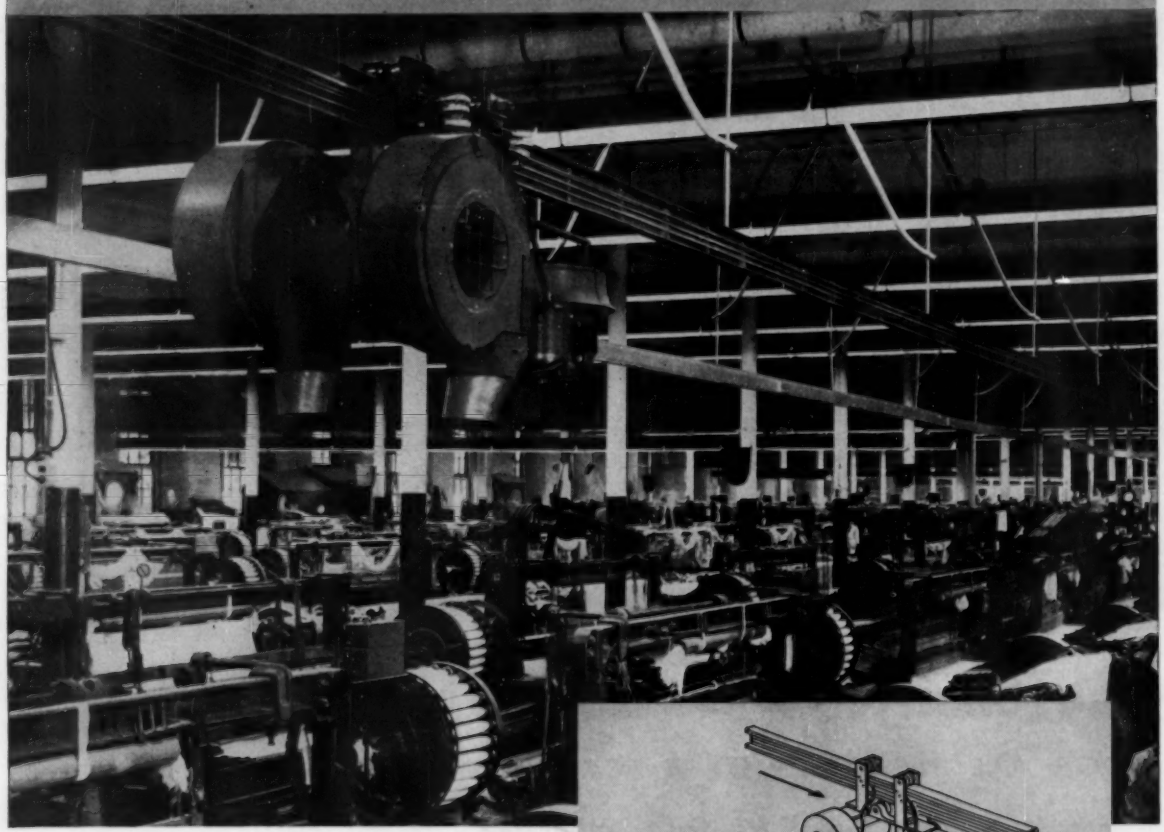
C. A. NORGREN CO.

3404 SOUTH ELATI STREET ····· ENGLEWOOD, COLORADO

For more data, write this page number on Reader-Service card. →

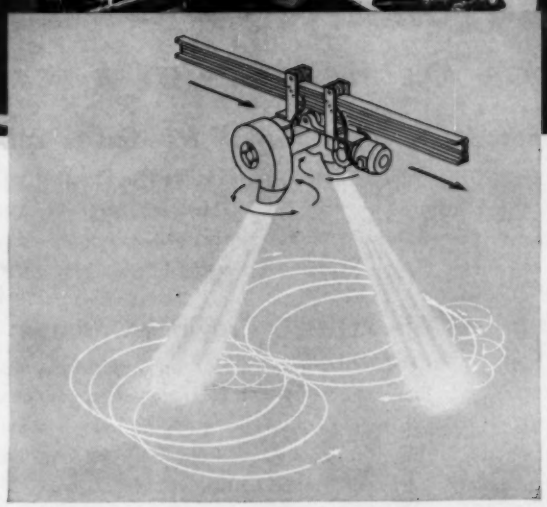
Amco Introduces it's New

Heliclone Loom Cleaner



Provides automatic, continuous cleaning of looms and ceiling • Drastically cuts cleaning costs • Steps up production • Improves quality of fabric • Reduces fire hazard • Improves weave room appearance • Boosts employee morale • Can be incorporated with beam handling equipment.

Write for further information, or ask to have an Amco engineer call.



Swiftly whirling outlet nozzles, driven by the air stream, direct the air jets at an acute angle in overlapping, circular paths. The result is a rapid series of high-velocity bursts of air over loom and warp surfaces for complete cleaning action.

AMERICAN MOISTENING COMPANY *Air Conditioning Systems and Textile Mill Equipment*

Executive Offices: Cleveland, N. C. Branches in Atlanta, Boston, Camden, Providence, Toronto

Tuffer TRADE MARK *Card Clothing*

Hundreds of mills... year after year... get the utmost in production with **TUFFER** *on their cards*

Tuffer always meets the requirements of those who want the best

Manufacturers of Card Clothing since 1866

HOWARD BROS.

T1

WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga., and Gastonia, N. C.

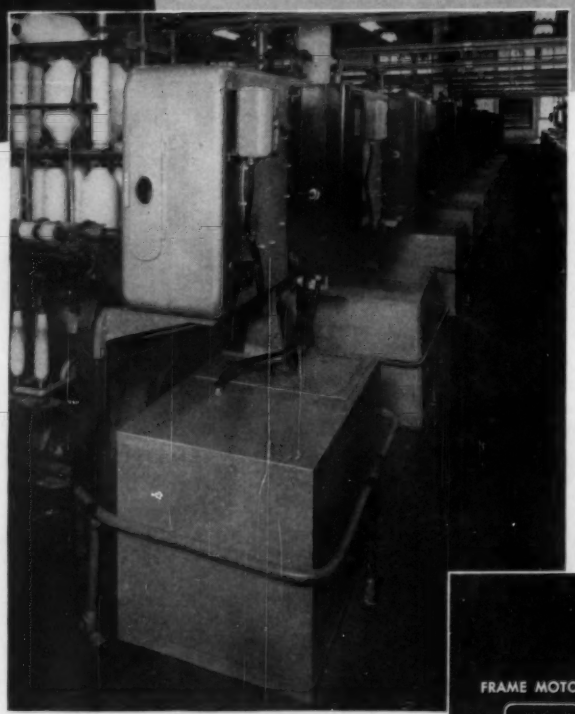
Direct Representation in Canada

TUFFER PRODUCTS Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing and Brushes • Top Flats re-covered and extra sets loaned at all Plants • Lickerins rewired at Southern Plants • Hand Stripping Cards

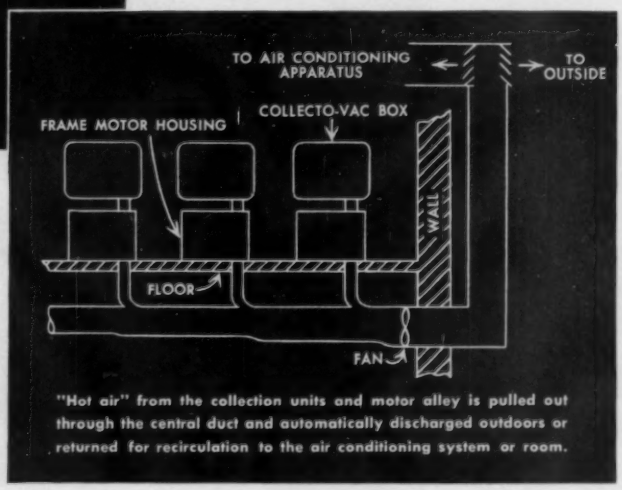
Does three jobs at one time!

NEW! Bahnson Central Heat Removal System

PAT. PENDING



1. **Removes frame motor heat thus eliminating concentrated heat in motor alley.**
2. **Takes out heat added by end collection units.**
3. **Reduces room heat load to provide more uniform conditions, increase production.**



"Hot air" from the collection units and motor alley is pulled out through the central duct and automatically discharged outdoors or returned for recirculation to the air conditioning system or room.

MORE HEAT REMOVAL — Only the Bahnson Central Heat Removal System takes out *approximately two times more unwanted heat* than other designs. This fact, based on comparative field tests, proves the value of the Bahnson system in helping you to improve production efficiency in your mill by maintaining better relative humidity and temperature levels.

IMPORTANT ADDED ADVANTAGES — The unit design and installation of the Central Heat Removal System avoids disrupting production due to single fan failure, and the "quick latch" construction of the frame motor enclosure permits easy access. C.H.R. is adaptable to existing end collection systems with a minimum of conversion.

Bahnson P. M.* Plan

Complete *Package Modernization Plan with new equipment for end collection, cleaning, creels, air conditioning. Offers one-source responsibility and service plus dollar savings.

Bahnson
COMPANY
WINSTON-SALEM, N. C.

For more information:

Let our representative explain the application and benefits of the Bahnson Central Heat Removal System with regard to your heat problems. Just write or call us.

AIR CONDITIONING / VACUUM COLLECTION / CLEANING / CREELS

Let's cut out the static... for the life of the garment!

ASTONIZED® FABRICS

... repel lint and dust • absorb moisture, like cotton • never cling or ride-up

ASTON® is the only wash-durable anti-static for all synthetics and blends! Only Aston lets you add all the wanted features of natural fibers, yet retain every synthetic advantage—wash and wear, shape retention, strength. Applies like a resin finish to yarn, fiber or fabric with no special equipment. Wash the fabric. Dry clean it. No matter, Aston's on for the life of the garment! . . . Write for the amazing story of Aston and for any technical assistance you may need in applying Aston. Here is the *most wanted finish* since synthetics were developed! ONYX OIL & CHEMICAL CO., Textile Division, 190 Warren St., Jersey City 2, N. J.

ONYX CHEMICALS

ask the man from Onyx

PERFORMANCE
records unsurpassed
. . . backed by millions of
spindles equipped.

NEWEST
and latest developments
are standard equipment
with Pneumafil.

ECONOMICAL
to operate . . . virtually no
maintenance costs—
a rugged piece of machinery.

UNLIMITED
types and arrangements of
Pneumafil systems . . . engineered
for any fiber or mill condition.

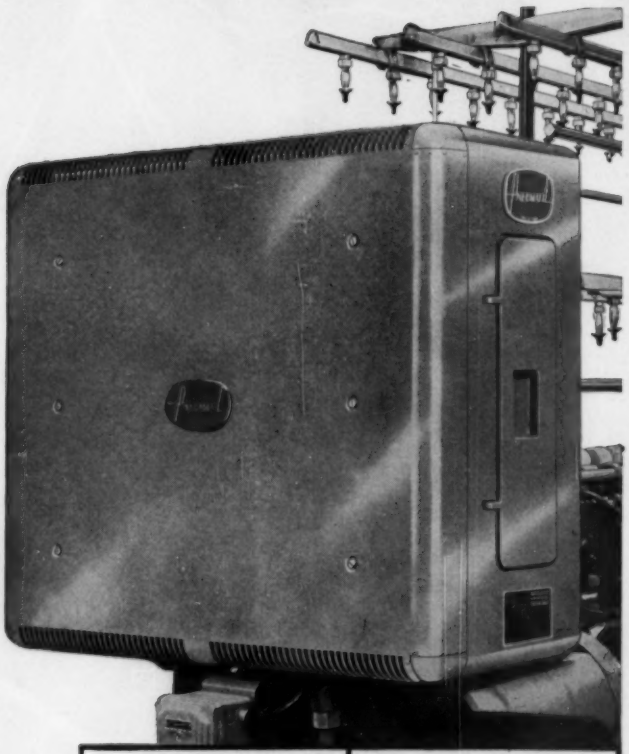
MILL MEN'S
practical ideas and valuable
suggestions are incorporated in
all Pneumafil equipment.

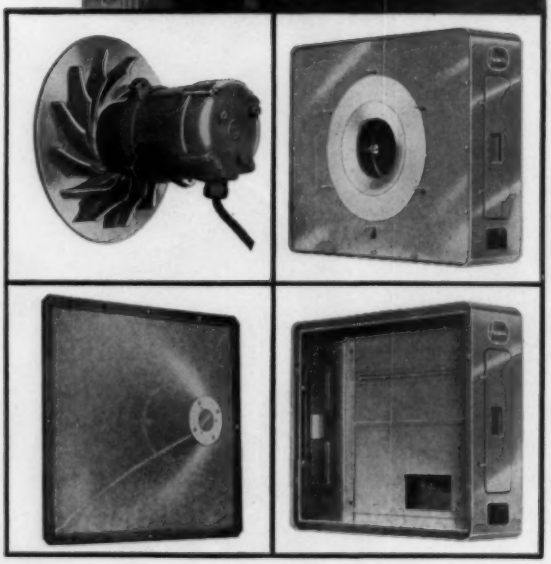
ADVANCED STYLING
and construction blends
in with today's modern
spinning processes.

FEWER ENDS DOWN—
Pneumafil's greater air quantity
keeps frames cleaner
and free of harmful waste.

IMPROVED YARN QUALITY—
Pneumafil's special "air flow"
pattern catches lint before
it becomes slubs.

LOWER SPINNING COST—.
Pneumafil's positive end pick-up and
superb cleaning means spinners can
operate more sides than ever before!





PNEUMAFIL CORPORATION
CHARLOTTE 8, NORTH CAROLINA
Atlanta, Georgia — Needham Heights, Mass.

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TEXTILE BUSINESS

Textile World

SEPTEMBER • 1957

THIS MONTH'S HIGHLIGHTS

TWUA Wants 35-Hour Week

•

Textile Exports Are Up

•

Home Building Gets a Lift

•

Chatham Mfg. Co. Expands

•

Silk Upswing Continues

•

Cotton Parity-Price Rises

TWUA's New Goal— A 35-Hour Work Week

The Textile Workers Union of America starts its drive for a 35-hour week with no loss in pay this month.

Forty-four New Jersey locals covering over 350 plants with 25,000 workers will formally open their drive at a dinner to be addressed by New Jersey's governor, Robert B. Meyner.

Next month a drive will start in Philadelphia for Pennsylvania locals.

So the textile industry is now listed among the early active targets of union demands for a shorter week.

Three years ago the United Auto Workers stated that in 1958 it would start campaigning for a four-day work week, and now practically all unions hope to use a shorter week as a bargaining goal. But so far it's mostly in the talking and hoping stage. TWUA ranks with the first major campaigners.

●

Here's how union thinking goes:

• It believes that a reduction in the work week is inevitable if the national economy is to remain healthy.

• TWUA is hard put to avoid dwindling membership as a result of mill closings in the North and TWUA's lack of success in the South. To make matters worse, manhour productivity in the textile industry has increased more than 50% in the last nine years and more than 340,000 workers have lost their jobs. TWUA figures that shortening the work week would spread the work and put more employees back on the payrolls.

• The union will ask congress to open hearings on the adoption of a 35-hour week in the textile industry as a forerunner to its general adoption in industry as a whole.

●

Union demands for a shorter week are a familiar crossroads.

When mills involved sit down with TWUA, talks will be in the same category as past discussions when a six-day week was common and the economy moved into a five-day week.

Fantastic as labor's demands often seem, TWUA's leaders are skilled campaigners and are always on the lookout for an issue that's popular with union members. Demand for a shorter working week at no loss in pay certainly falls into this category.

The union's initial aim will be to try to soften up the industry and show that there is nothing sacred about a five-day, 40-hour week.

It points to a closely allied industry, the needle trades, which now has more than 95% of its membership covered by contracts for a five-day, 35-hour week.

●

Many leading industrialists see the shorter week as possible. They believe it will come in time. But they point out that it will have to come through increased efficiency and productivity so that there is no decline in purchasing power.

One important business leader with large holdings in textile mills has gone on record as viewing the shorter working week as a worth-while objective for both management and labor since it spells progress.

Textile Exports Up— But Future Is Uncertain

Textile exporters predict that this year's shipments will run ahead of a year ago.

Main reason: Mills doing foreign business have been able to hold their own under the government's cotton-products-export program that went into effect Aug. 1, 1956.

This program is tied in with the two-price-cotton system.

Here's how it works:

The government pays a subsidy on cotton goods made by U.S. mills of U.S. cotton and sold abroad. The amount paid is based on the spread each month between the U.S. cotton spot-market price and the price at which the government is selling cotton in world markets.

The spread has been steady for several months at a base equalization-payment rate of 6.31¢ per lb. The September rate may vary as a result of new-crop reports.

•

So far, rates have varied from 3.34¢ per lb. for coated, rubberized, and impregnated fabrics to 8.83¢ per lb. for articles manufactured from finished fabrics. Rate on printed print cloth, by far the biggest export, is set at 7.76¢ per lb.

Payments during the cotton year ended August 1st were about $14-million.

Without this help, the export market would have dried to a mere trickle.

The subsidy offsets competition abroad from cheaper cotton prices but comes nowhere near counteracting low foreign wages. As one exporter puts it, "The program blunts one horn of our dilemma."

•

Cotton-piece-goods exports for the first half hit 290-million sq. yds., against 270-million a year ago.

Exporters are confident that shipments will nudge the 600-million-sq.-yd. mark this year, for the best business since 1954, when shipments were 605-million sq. yds.

Man-made-fiber-piece-goods exports, not subject to subsidy help, are off slightly from recent years. Intensified competition from abroad, combined with exchange difficulties and foreign unrest, are hard to beat.

Total shipments of man-made-fiber piece goods this year will probably equal the 1956 figures of 193-million sq. yds. Exports in 1955 were close to 200-million sq. yds.; in 1954, they passed the 200-million-sq.-yd. mark.

Over-all, man-made fibers have staged big proportional gains in the export field. In 1937, only 18-million sq. yds. left the country, less than one-tenth of today's market. By contrast, cotton-piece-goods exports in 1937 amounted to 252-million sq. yds., a little less than half of what they are now.

Seasoned exporters are hardened to sudden shifts in markets caused by monetary problems or political upheavals. But the list of troubles is growing, and the long-term prospects are foggy.

Department-Store Sales Climb

Midsummer textile sales to consumers, reflected in department-store sales, took a small spurt upward.

For most of the year, sales to final consumers have been running about 2% above last year; but in July they edged upward at a little faster clip.

They were 3% ahead of last year for both the week and the month ending Aug. 10.

•

Areas showing the biggest gains so far this year are New York and Richmond, both 4% above the first seven and a half months of 1956.

The Chicago, Minneapolis, and Dallas areas are 3% above last year; and the Philadelphia and Atlanta areas are right on the national average—2% above last year.

The only area where sales slipped below last year's level is the Cleveland area—down 1%.

Fieldcrest Buys St. Marys

Fieldcrest Mills, Inc., purchased St. Marys Woolen Mfg. Co. last month to become one of the dominant factors in the quality-blanket field.

This acquisition follows a trend among blanket manufacturers started earlier in the year by Chatham Mfg. Co. [see p. 20].

Fieldcrest will operate St. Marys' 58 broad looms as a subsidiary corporation. Sales will be headed up by F. W. Holt, Fieldcrest's vice president in charge of domestics sales.

•

St. Marys was founded in St. Marys, Ohio, nearly 100 years ago. It has always produced a line of high-quality wool blankets and all-wool piece goods.

The merger should strengthen the market position and profit potential of both companies.

In spite of recent mergers in the blanket field, Beacon Mfg. Co. continues to be the biggest factor, although its production is strictly in popular-price goods.

Take a look at what's going on at the moment: Colombia, exchange problems; Haiti, political trouble; Philippines, imports cut; Indonesia, no money; Guatemala, political trouble and higher tariffs; Venezuela, high tariffs.

And Canada, the most important outlet of all, (cotton piece goods 184-million sq. yds., man-made-fiber fabric 32-million sq. yds., last year) threatens to curtail imports by 15% to provide for comparable increase in purchases from Britain.

The "common market" plans are another warning flag that may produce long-range troubles.

●

What's the future for U.S. textile exports?

It's not bright, exporters say. The U.S. can still provide specialties that other exporting nations cannot touch so far. The mass style market, especially in cotton prints, offers a decided edge. Prompt deliveries are another asset.

Exporters realize that these few advantages left them must be exploited to the full if they are to keep any semblance of the present market in the years ahead.

All told, the U.S.'s share of world textile markets is not very impressive now. In cotton piece goods, Japan leads with 1-billion sq. yds. a year, followed by India with 743-million sq. yds. The U.S. ranks third and Britain, exporting 474-million sq. yds., fourth.

The U.S. will be hard put to hold that share, exporters say. And almost nobody looks for an increased share.

Home Building Gets a Lift

Mills interested in home furinshings are encouraged by the partial recovery now looked for in new-housing starts.

Last month's lower F.H.A. home-mortgage requirements bolster hopes for increased home sales. There is now talk that total housing starts will touch 1-million units this year despite the fact that an upward shift in bank rates could cancel out much of the stimulating effect F.H.A.'s action might have had.

But the picture is a little rosier than last spring's estimate of 880,000 units for 1957. And it buoys the long-range potential for such items as carpets, draperies, sheets, towels, and blankets.

●

Home-furnishings mills point out a three- to four-year lag before new-home owners invest heavily in textiles. First big purchases usually are in the appliance field. Example: only 16% to 18% of carpet sales go to brand-new homes.

There is evidence of a backlog demand building up for housing and of a resurgence coming in housing starts. But outlook for houses in 1958 depends upon the supply of men and money. Both are tight at present.

Mills with their eyes on the housing field must reckon with political action. The Federal Reserve Board for example, looks on deferred housing as one of the latent supports for the economy; and so long as inflation is threatening, the Board will be reluctant to make new-home building much easier.

Seamless Nylons Ride Boom

Continuing to ride a popular trend, production of women's seamless nylon hosiery jumped 30% in the first half of the year compared with the same period in 1956. At the same time, women's full-fashioned-hosiery production fell 13%.

Output of seamless nylons for the first half topped 8,841,000 doz. pairs compared with 6,379,000 doz. pairs a year ago, according to the National Association of Hosiery Manufacturers.

Production of full-fashioned nylons dropped from 22,543,000 doz. pairs in the first half of 1956 to 19,602,000 doz. pairs in the first half of this year.

Again, seamless nylons were the strong point in a market that saw total hosiery production decline 4% in the first half of this year compared with last—from 72,676,000 doz. pairs to 69,675,000 doz. pairs.

Cotton-Goods Finishing Off From Previous Year

Output of cotton fabrics processed by finishing plants dipped 7% in the first half of 1957 from the same period in 1956. This decline closely paralleled a similar dip in cotton consumption.

Finishers bleached, dyed, or printed 3.9-billion yds. of cotton goods in the Jan.-June, 1957, period, against 4.2-billion yds. handled in the same months of 1956, according to the National Association of Finishers of Textile Fabrics.

The period showed a gain of 2% in plain-dyed goods, but bleached goods dipped 10% and prints were off over 14%.

Stocks of gray goods held for finishing instructions, plus finished goods, were lower at the midyear point as compared with last year's position. Gray-goods stocks were off about 25% and finished goods on hand declined 15%.

Factoring Rates Go Up

Cost to mills doing business with factors has gone up.

Last month, most factors increased the interest on borrowed money from 6% to an average of 7%.

This action represents a solid break with the past. The old 6% rate was historical.

Factors point out they can still get all the money they want either from banks or on their own paper. But it now costs them anywhere from 4½% to 5½%.

Even at a 7% charge to mills, factors claim they are just about breaking even.

Nylon in Boats

Coated nylon is gaining in the boating field.

Such items as protective covers, convertible tops, weather screens, and side curtains are being made in increasing quantities from coated nylon.

One manufacturer reports vinyl-coated nylon is outselling conventional coverings by 10 to 1. Another reports sales are 70% on this type of covering, despite the higher initial price.

Women To Discuss Home Furnishings

New trends in home furnishings may be one result of the Congress on Better Living, meeting in Washington next month.

Women representing the nation geographically and by age groups, home ownership, family sizes, incomes, and husbands' occupations will have an opportunity to tell manufacturers exactly what families want in their homes.

Last year's discussions resulted in fresh ideas for home building. Mills can look for this year's meeting to come up with some new ideas in home furnishings.

At Chatham Mfg. Co.—
More Production, Less Competition

CHATHAM'S PRESIDENT: "We intend to increase our business and profits."

Chatham Mfg. Co. has pulled three erstwhile competitors under its corporate blanket to become a more dominant figure in the blanket, upholstery, and apparel-fabric markets. The moves included—

- Buying out the blanket business of F. C. Huyck & Sons Co.
- Taking over North Star Woolen Mills' blanket business
- Buying out the Springfield Woolen Mills' plant at Springfield, Tenn., as a going concern

Huyck operated the 48-loom Kenwood Mills at Cavendish, Vt., on blankets and other woolen goods.

North Star had a 90-year-old name in the blanket field before it moved to Sanford, Me., from Lima, Ohio, where the plant had 72 looms.

The Springfield Woolen Mills' purchase brought in 52 looms, including a dozen Sulzer machines, and boosted Chatham's looms to over 600.

The consolidation increased Chatham's manufacturing facilities by 10% and removed competition from about 20% of its own equipment. An intangible advantage is the value of the Kenwood, North Star, and Springfield names in the blanket business. Chatham will continue to use all three on certain lines of blankets.

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These moves by Chatham are in character with a pattern of growth reaching back nearly 100 years.

Shortly after the Civil War, Alexander Chatham came to Elkin, N. C., and went to work for Richard Gwyn as a clerk and assistant in Gwyn's cotton mill.

Chatham married the boss's daughter; and soon after, he and a brother-in-law started a small store and grist mill on Big Elkin creek.

Wool brought in by local farmers gave the partners the idea of

getting into the wool-manufacturing business, and soon they had established a small woolen-yarn plant and then added a few looms. By 1877, Elkin Woolen Mills was a going concern. In 1890 the Chatham family bought out the Gwyn interests, and the business became Chatham Mfg. Co.

Fine woolen blankets had become the major product by this time, but other woolen fabrics were also made at the plant.

In 1907 a branch factory was erected at Winston-Salem, N. C. The unit was first used for manufacturing. It later became a finishing plant and finally was absorbed into the Elkin operation in 1940. Hugh Gwyn Chatham, Alexander's son, was the prime mover during these years.

In 1929 control of the company went to Hugh's son, Thurmond Chatham. The company continued to expand, adding automotive fabrics to its manufactures in 1936; and in 1950 it branched out into apparel fabrics. Both of these moves have proved to be wise; Chatham has supplied upholstery and other fabrics for every make of car in the U. S., and its apparel fabrics are an important part of total sales.

In 1953 Chatham purchased the century-old Leakesville Woolen Mills with plants at Spray and Charlotte, N. C.

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In February, 1955, Hugh Gwyn Chatham II took over the reins as president. A living refutation of the old "shirtsleeves to shirtsleeves in three generations" theory, Hugh exhibits all the drive and ability that has made Chatham a money-maker since 1877.

Hugh Chatham explains his latest moves simply: "They were a good buy, and we felt that we could increase our business and profits by adding these names and the Springfield mill to the company. We intend to sell under these brand names. At the same time, we're going to step up our publicity on the Chatham name."

To help merchandise the added production, **Chatham Fabrics, Inc., has been established in New York as exclusive selling agents for the mills.**

Exact figures as to the company's financial affairs are hard to come by because it is a closely held family enterprise. Operations in North Carolina at Elkin, Spray, and Charlotte and in Springfield, Tenn., employ about 3,500 people and operate 616 looms. Hugh Chatham puts present dollar volume at "40-million to $50-million—about four times what it was before World War II, with about twice as many looms."

●

The company is capitalized at $5,417,262. Production capacity of blankets alone is 7-million annually.

The name Chatham means blankets to most people, but the automotive and apparel lines often equal or even exceed the dollar volume of blanket sales as market conditions vary.

Chatham is using more and more man-made fibers in its products. Some blanket numbers, for instance, are now made entirely of man-made fibers; others are made of blends of man-made fibers with wool.

Says Hugh Chatham, "We often are able to produce a superior article with the new fibers and at the same time enjoy the more-stable price structure of the man-made fibers."

One thing is certain: Chatham is not drifting. Hugh Gwyn Chatham II appears to have inherited the family faculty of making things grow.

Union Men Face Ouster

Two top officials of the UTW, President Anthony Valente and Secretary-Treasurer Lloyd Klenert, face ouster from the AFL-CIO.

The two textile-union men have been accused by the Senate labor-rackets investigation of misusing $128,404 in union funds.

Their alleged action, plus charges leveled at other union officials, is bringing growing support for Federal regulation of union funds.

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TWUA officials, not involved, acknowledge that "hard-hitting, effective action can and should be taken against dishonesty in labor."

Casting about for blame, the TWUA executive council says that lax law enforcement and the compliance of employers and politicians are the main reason for labor racketeering.

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Already Labor Secretary Mitchell has issued a new form for union financial reports made to his department.

Among other changes, the forms require listing advances to officers, other than salaries, and any contributions, gifts, or loans from the union to officers or staff members.

Freight Rates Rise

Last month's boost in freight rates poses knotty problems for mills.

While the blow was somewhat softened by the refusal of Southern railroads to raise rates on such items as "baled cotton, cotton linters, cotton piece goods, rayon fiber, yarn and related synthetics," mills are face to face with rising transportation charges.

●

Biggest worry is coal, second largest commodity handled by many mills. Other items such as starch are in for the increased freight-rate bite. Boost in coal alone is estimated at 15¢ a ton.

Mills' search for other channels of shipment is complicated by prospects that trucking lines will likely raise their rates, too.

Silk Upswing Continues— But Imports Threaten

Silk, already on the upswing, is in for a big splurge next month when the Sixth International Silk Congress meets in New York, Oct. 21-25.

The Congress convenes every two years. Since 1948, sessions have been held in such world centers as Paris, Zurich, London, Milan, and Brussels. Each of the meetings has bolstered silk's position in the competitive fiber market. This year should be no exception.

Knocked out of the market by the war and the advent of nylon, silk has slowly climbed the recovery ladder. Today, U. S. consumption of silk in uses other than women's hosiery is actually ahead of the immediate prewar years.

Silk consumption for this year will hit close to 8-million lbs. (approximately 60,000 bales of 133 to 134 lbs. each). This volume compares with 5.5-million lbs. in 1953, the year consumption began to show steady yearly gains.

In a typical prewar year, the U. S. used close to 52-million lbs. of silk. But 85% went into the manufacture of silk stockings, and only about 7.7-million lbs. went into woven fabrics and other end uses.

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Importers and mills have set their sights on a 13-million-lb. market five years from now. To help their cause, they count on—

- The International Silk Congress for its world-wide promotion of silk and the congress's beneficial influence on silk growing and weaving.
- Fiber-price stability since the Japanese government instituted price controls.
- Improvements in raw-silk quality.
- Lower handling and winding costs as a result of silk being available now in double skeins (7.5 oz. against 4 oz.).
- Apparel manufacturers stressing the "silk look" in many garment lines. Silk is gaining rapidly in men's wear, and predictions are that in a few years as much silk will be consumed in men's wear as in women's wear, silk's traditional field.
- A steady rise in the use of silk blends.

●

In spite of the booming market, U. S. weavers are beginning to cast a wary eye at the old nemesis: Japanese imports.

Until recently, most Japanese imports were lightweight fabrics like habutaes and scarves, which are not woven here. Now, heavier fabrics that compete directly with U. S. mills are beginning to appear.

In 1954, Japan shipped 12.6-million sq. yds. of silk and silk-mixed piece goods to the U. S. These imports rose to 14.6-million sq. yds. in 1955 and to 26.1-million sq.yds. last year. Still higher imports are expected this year.

The only other important shipper is Italy, with 1.3-million sq. yds. in 1954, 2.3-million in 1955, and 3.3-million last year.

Some silk weavers are already qualifying their predictions of a rosy future for silk with a "providing that something is done about imports."

Colored-Yarn Fabrics Firm

Colored-yarn fabrics have been strong in recent weeks. Spring lines of ginghams and chambrays have been moving right along, and some prices rose 2% to 4% last month.

A general firming has been noted in denims and corduroys. Upturns in these fabrics are attributed to strict production controls initiated early this year.

Machine-Picked Cotton Up

Mechanical pickers and strippers picked 27% of last year's cotton crop, up from 23% in 1955 and a mere 6% in 1949. Further gains are looked for this year.

More than 50% of the Western states' crop was machine-harvested last year. But in the Southeast, where farms are small, most cotton was still hand-picked.

Japanese Study Mixing

TOKYO, JAPAN — The Japan Chemical Textile Association will study possibilities of mixing rayon staple with cotton in order to increase demand for their product.

The association claims that the research could bring about a saving of about one-half the foreign exchange spent yearly for cotton.

Spun Rayons Improve

The spun-rayon-fabric picture continues to brighten as effects of production controls instituted earlier in the year are beginning to be felt.

Large spun-rayon weavers like J. P. Stevens are now back on a five-day week following firmer market conditions. Last spring these mills cut output to a four-day week.

Parity Price of Cotton Takes Another Jump Upward

The Secretary of Agriculture last month raised the support price of cotton from last February's 77% of parity to 78%. The new prop shoves prices from an average of 31.65¢ a lb. to 32.31¢ for Middling 1-in. staple.

Cotton experts generally regard the boost as another step in the wrong direction for the price of cotton. In spite of virtually unanimous opinion that cotton is being priced out of the market, existing laws force the Secretary to raise the parity price.

●

Here's how the laws work:

• Under the present flexible support formula, price supports must go up if surpluses fall.

• Parity (a yardstick to measure the farmer's purchasing power by keeping costs in balance with selling prices) has risen since February. And the final support must be based on parity at the start of the cotton marketing year August 1.

●

And here's what's been happening:

• USDA now sees the cotton crop slipping to 11.9-million bales compared with 13.3-million in 1956.

• Cotton exports have exceeded previous estimates—a bright picture for reducing cumbersome surpluses but a dark one for lower price supports.

Cut in crop estimates stems from farmers' retirement of around 3-million acres of cotton land to the soil bank. But record yields, now placed at close to 416 lbs. per acre, partially off-set lower planted acreage.

●

The cotton-pricing structure is now running a vicious circle.

Cotton exports have boomed since the government lowered export prices by means of subsidies to encourage sales abroad. Export shipments skyrocketed to 7.6-million bales last year, throwing earlier estimates into a cocked hat. This year they'll run between 4.5-million and 6-million bales.

But exports increased only because the government paid the difference between the U. S. price and the world price.

Now that increased exports have reduced the surplus held by the government, laws require that the support price be raised.

Level of exports for the new cotton year will be influenced by government policies. Shipments will be affected by the size of government funds available to finance cotton exports.

Then, too, small percentage variations in production, consumption, and stocks abroad could produce rather large variations in exports of U. S. cotton.

Market observers believe that price supports on cotton will continue to inch up under the flexible price-support program. That is why agitation to change existing laws is spreading.

But with the new crop year running into 1958, it will be at least 1959 before any changes can be made.

Station-Wagon Increase To Lower Auto-Fabric Use

Detroit estimates that 1-million station wagons will be made in 1958 —a 40% increase over 1956.

Since station wagons use very little interior textiles, every increase in station-wagon production cuts into fabric use.

Here's the station-wagon outlook as it stacks up at present:

Ford expects 40% of the 1-million-unit market in 1958.

Mercury doubled last year's output during the second quarter. Currently, 18% of its deliveries are station wagons.

American Motors devotes 60% of its production to station wagons. This figure should go up next year.

Chevrolet figures that 16% of its business will be in station wagons this year and looks for 25% within the next three to five years.

Plymouth expects station wagons to account for 20% of its business in 1958.

While Detroit statisticians and market analysts are pondering the question of what model of car the station wagon replaces, mills know one thing for sure: a station wagon is little good to the textile-fabric market.

Glass Fiber on the Move

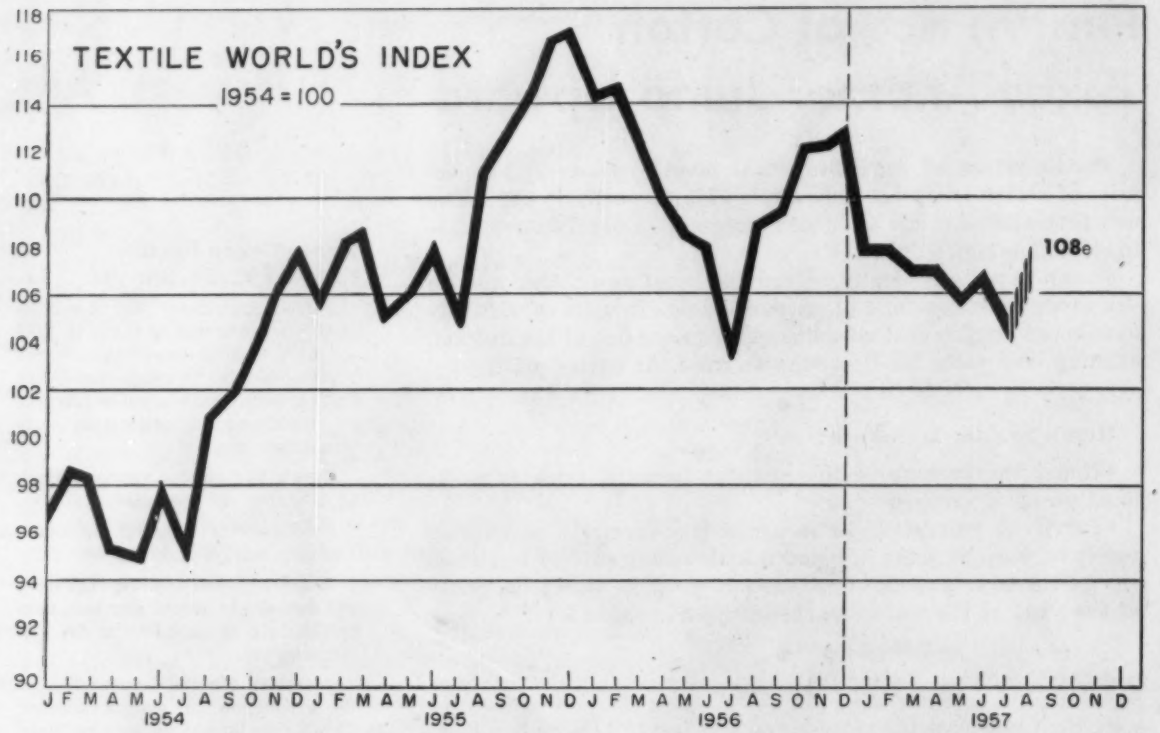
Glass fiber chalked up further gains when second-quarter production hit 30-million lbs. to establish another record.

On this basis, production for the year should top 100-million lbs. for the first time.

●

Latest move in the glass-fiber field is being made by L. O. F. Glass Fibers Co. A fully integrated glass-yarn plant will be built by the company in Laurens, S. C.

Owens-Corning Fiberglas Co. is now adding to its Anderson, S. C., plant.



Index of manhours worked in the textile industry adjusted for changes in productivity

Textile World's Monthly Indicators

	Latest Month	Previous Month	Year Ago
Textile World's Index (1954 = 100)	**108**	**105**	**109**
Employment (thousands) B.L.S.	977	1,003	1,020
Production Workers (thousands) B.L.S.	887	912	928
Weekly Earnings B.L.S.	$58.20	$58.20	$55.87
Hourly Earnings B.L.S.	$1.50	$1.50	$1.44
Weekly Hours Worked B.L.S.	38.8	38.8	38.8
Production Index (1947–1949 = 100) F.R.B.	88	100	86
Wholesale Price Index (1947–1949 = 100) B.L.S.	95.4	95.5	94.9
Manufacturers' Sales (million $) Commerce	1,021	1,079	1,157
Manufacturers' Inventories (million $) Commerce	2,636	2,625	2,554
Inventories to Sales Ratio	2.58	2.43	2.40
Exports (Million $) Commerce	162.7	154.6	111.3
Imports (Million $) Commerce	77.6	82.8	90.5
Stock Price Index (1941–1943 = 10) Standard & Poor's	22.08	22.21	24.18
Failures (number) Dun and Bradstreet	9	6	6

National Economic Indicators

	Latest Month	Previous Month	Year Ago
Industrial Production (1947–1949 = 100) F.R.B.	144	144	136
Consumer Prices (1947–1949 = 100) B.L.S.	120.2	119.6	116.2
Wholesale prices (1947–1949 = 100) B.L.S.	118.1	117.4	114.0
Population (millions) Census	168.4	168.2	168.1
Unemployment (thousands) Census	3.0	3.3	2.8
Employment (millions) Census	67.2	66.5	66.7
Personal Income (billion $) Commerce	345.5	344.8	325.6

Photo courtesy Beacon Piece Dyeing & Finishing Co., Inc., Beacon, N. Y.

A "Liquid Lock" for textile colors

A significant advance in textile printing occurred with the advent of resin-bonded pigments. These new colors permitted striking patterns in brilliant shades with excellent fastness to sunlight, atmospheric fumes, washing and dry cleaning. But they still left something to be desired on crocking.

Finally a leading textile color manufacturer hit upon a simple solution – one based on CHEMIGUM LATEX. Combined with other materials and easily mixed into the base pigment colors at the printer's, CHEMIGUM LATEX helps form a protective coating against abnormal abrasion. The end result is greatly improved fastness to crocking plus added resistance to washing.

In addition to putting a liquid lock on pigment colors, CHEMIGUM LATEX has many other uses in the processing of textiles. Its high-binding strength, flexibility, light color and permanence plus ease of handling, compounding and applying are finding wide application in binders, coatings, finishes and adhesives of all types.

For full information, including the latest *Tech Book Bulletins*, on how CHEMIGUM LATEX can improve your product, just write to:

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the "inside

Here's the real "inside story." When particle-size is not uniform, particles agglomerate, filter out and build up on package sides and at the core, as illustrated by left cross-section. When particles are uniformly dispersed, penetration is even, as shown on right hand package. Dye yields improve, waste is minimized.

Laboratory and mill results show that National Carbanthrene® Dyes are unsurpassed in cleanliness and dispersibility! New manufacturing techniques developed by National Aniline Research produce vat dyes that fully meet the strict requirements for pigment application.

One by one, these improved dyes have been introduced commercially without fanfare or publicity. Their names have not been changed. Nevertheless their superiority has been immediately apparent to dyers.

Dyeings are cleaner, more uniform and free of speckiness. Results are always precisely predictable. Better dye yields are frequently realized. Dyes are easier to handle in storage and processing.

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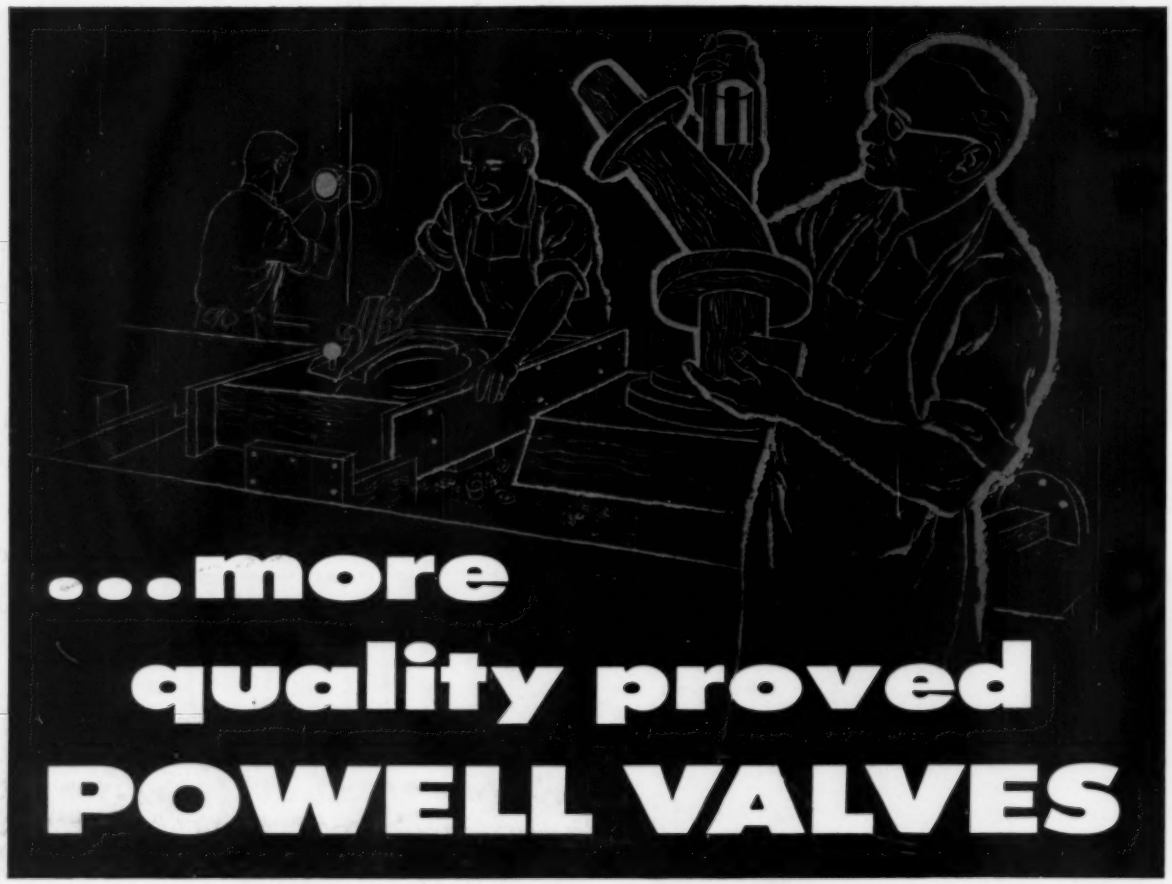


...more quality proved POWELL VALVES

Fig. 2337—Stainless Steel Gate Valve for 200 Pounds W.P. Screwed-in Bonnet. Inside Screw, Non-rising Stem.

Fig. 1847—Small Stainless Steel Swing Check Valve for 200 Pounds W.P.

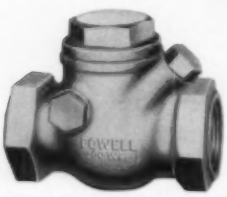
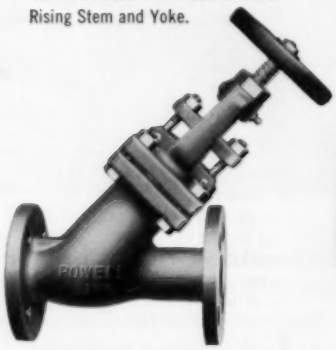
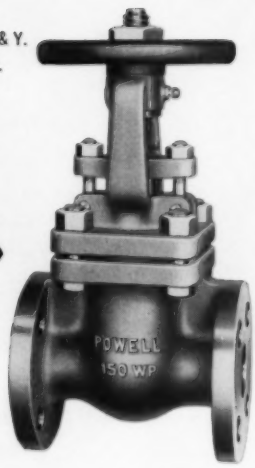


Fig. 2491—Stainless Steel O.S.& Y. Gate Valve for 150 Pounds W.P.

Fig. 2107—Stainless Steel "Y" Valve for 150 Pounds W.P. Outside Screw Rising Stem and Yoke.





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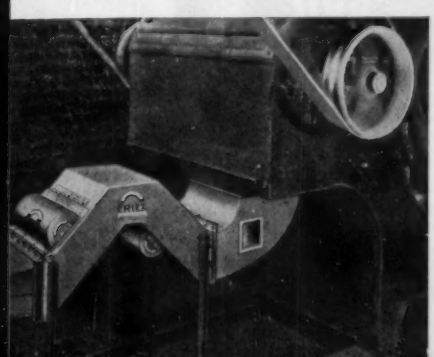
THE WM. POWELL COMPANY, CINCINNATI 22, OHIO . . . 111th YEAR

OLD IRON PANTS AND THE MAGNET! A lady from yesterday with a metal-ribbed girdle wouldn't be safe next to an Eriez Magnet. She might easily be "hung-up" by the powerful Alnico V action. This idea of herculean power is practically applied in textile processing lines. Magnets remove dangerous tramp iron preventing fires, machinery damage and loss of production in cotton, woolen, rayon and waste mills. *All Eriez Magnets are non-electric, self-contained. They operate without any wires or attachments. Best of all their magnetic power lasts a lifetime. The first cost is the last.*

ERIEZ SPIKED-APRON MAGNET SPIKES METAL DAMAGE. Lawrence Garnet Co., Lawrence, Mass., produces garnet specialties of silk and worsted, white worsted and merino. As a precaution against tramp iron damage to the machines, Eriez Spiked-Apron Magnets were installed in the feeder boxes. This step proved highly successful, and the magnets removed large quantities of knitting needles, pieces of spindles, ring travellers, etc., from the processing lines. Previously, any metal such as this would put the machine out of use for days or even weeks, seriously curtailing production. So efficient were the magnets in preventing tramp iron damage, thus saving thousands of dollars, that when the company recently installed new machinery, it would not use it until Eriez Permanent Magnets had been added.

MAGNETIC IDEAS FROM ERIEZ

TRAMP IRON CAN'T GET OVER THIS HUMP. Eriez Permanent Non-electric Magnetic Humps offer the ideal method of removing dangerous tramp iron from material conveyed in pneumatic lines. The patented Eriez Hump consists of 2 powerful plate magnets in an enclosed sheet-metal housing. The hump design changes the direction of the flowing material, creating a mixing or tumbling action. This directional change of the moving material allows the magnets to catch and hold spark-producing tramp iron. Eriez Magnetic Humps bear the Associated Factory Mutual Stamp of Approval for installation in textile mills, and are heartily endorsed by insurance companies as a means of reducing mill fires caused by tramp iron. Want more information? . . . request Bulletin 563.



ERIEZ HI-POWR MAGNETIC SEPARATORS

ERIEZ MAGNET IS WATCHDOG FOR THIS FLOCK. Cellusuede Products, Inc., Rockford, Ill., manufacturer of rayon, cotton and hair flock, protects its reputation and costly cutting knives with an Eriez Plate Magnet that pulls dangerous tramp iron from the raw material before it reaches the knife blades. The finished flock, used as a coating material for textiles, paper, metals, etc., and as a reinforcing material to strengthen rubber and plastic compositions, *must* be entirely free of metal contamination. Since installing the magnet, there has been no trace of stray metal, no damage to knives by tramp iron.

Eriez' free booklet "Magnetic Ideas" can help you. Send for it without obligation. Address: Eriez Manufacturing Company, 101 W Magnet Drive, Erie, Pa. Or, on your specific request Eriez' factory-trained field men backed by Eriez' laboratory and engineering know-how will be happy to study your particular problem, make a plant survey and offer helpful "Magnetic Ideas".

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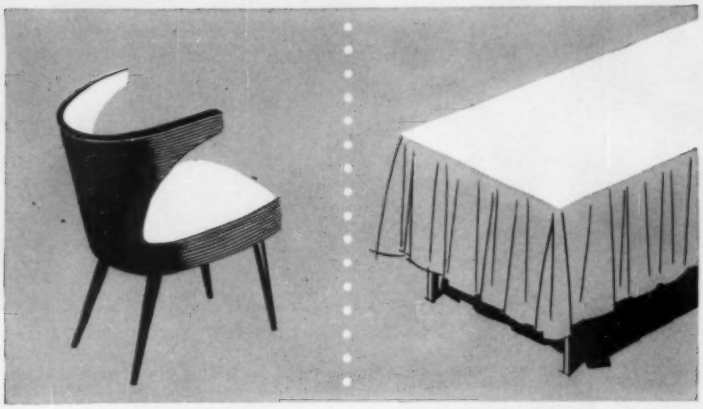
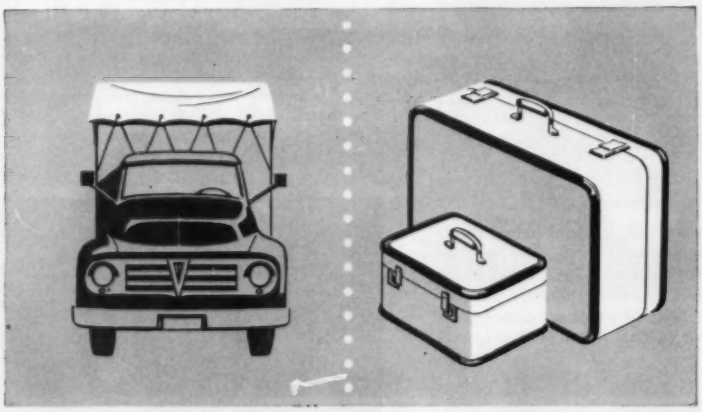
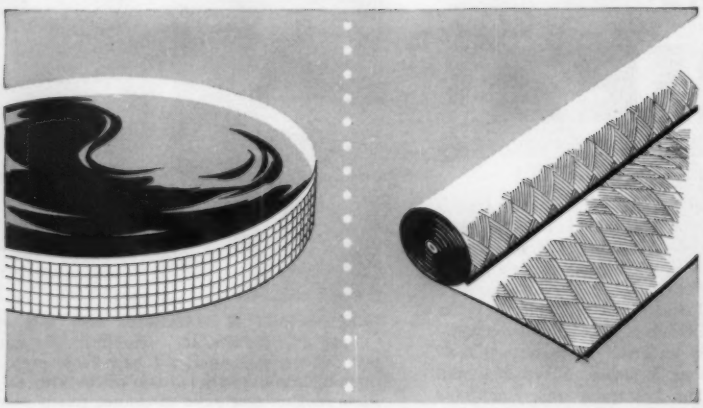


durable upholstery *stain-resistant tablecovers*



lightweight covers *tough fabric luggage*



fabric swimming pools *washable fabric wallcoverings*

GEON-BASED COATINGS

make light fabrics tough for new uses

TODAY, fabrics need not be heavyweights to stand really rugged use. With Geon-based coatings, light fabrics can be made extra-strong and remarkably resistant to abrasion, wear and tear.

Other plus qualities fabrics get from Geon-based coatings include:

- **impermeability**
- **resistance to grease, oil and mildew**
- **softness and flexibility**
- **sunfast coloring in solids or print designs**
- **lasting pliability despite severe temperature and humidity changes**

If you're looking for ways to make your present fabrics better or broaden their fields of use, investigate Geon coatings. For more information write Dept. FX-5, B.F.Goodrich Chemical Company, 3135 Euclid Ave., Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B.F.Goodrich Chemical Company
a division of the B.F.Goodrich Company

B.F.Goodrich **GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors**

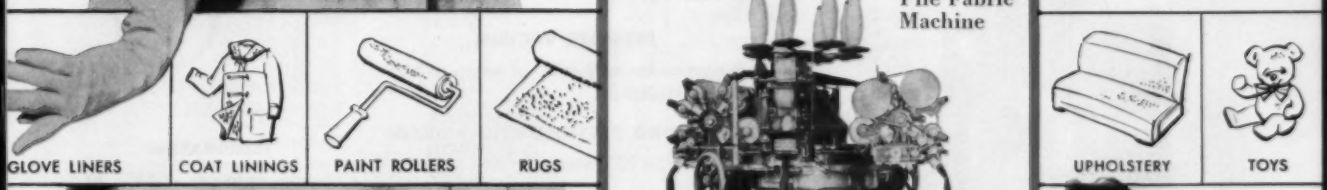
"Hi-Pile"

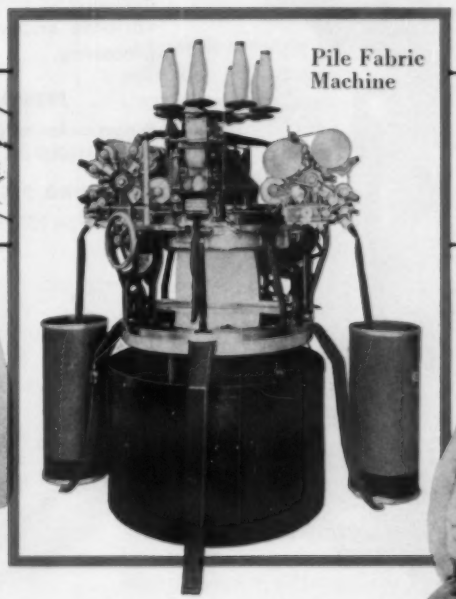
. . . the most versatile fabric in the knitting field today.

With many markets yet to be explored, this fur-like fabric is now used for high fashioned outerwear and a wide range of consumer products.

Fabrics composed of natural, synthetic or a combination of fibres can be produced on the Wildman Jacquard "Hi-Pile" knitter.

Wider markets . . . greater product flexibility . . . make the Wildman Jacquard "Hi-Pile" knitter a sound investment in future mill profits.





Leading Manufacturers of Quality Knitting Machinery

WILDMAN JACQUARD

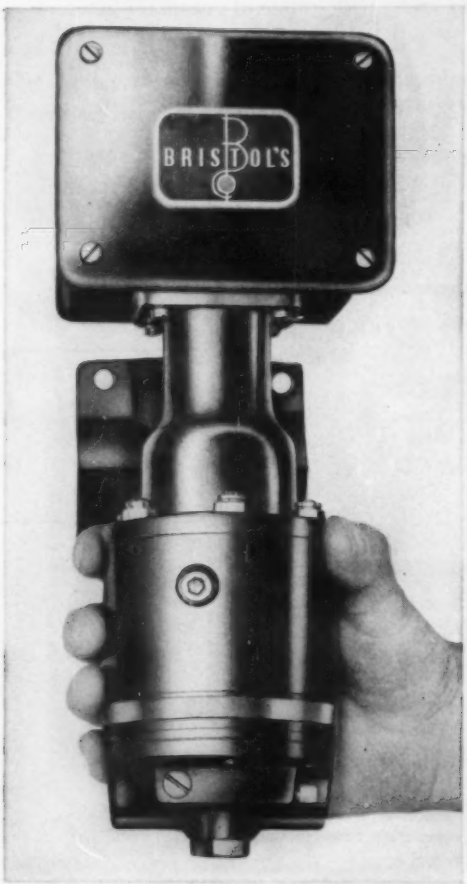
For complete information on this or other Wildman Jacquard knitting machines write today:

WILDMAN JACQUARD CO., 1210 Stanbridge Street, Norristown, Pennsylvania

A subsidiary of Draper Corporation, Hopedale, Mass.

BRISTOL Metagraphic
offer broadest measurement

For temperature, pressure, vacuum, differential pressure, flow,



BRISTOL METAGRAPHIC PNEUMATIC TRANSMITTERS

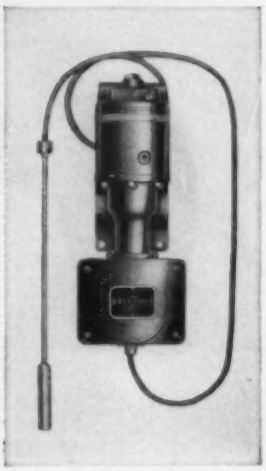
are the measuring centers of the Metagraphic transmission system. They are constructed for friction free operation, and provide superior control and high speed transmission, with low air consumption. Metagraphic transmitters are available for measuring practically any variable encountered in industrial processing.

PRESSURE, VACUUM

Ranges as low as 0 to 3" of water; as high as 0 to 10,000 psi.

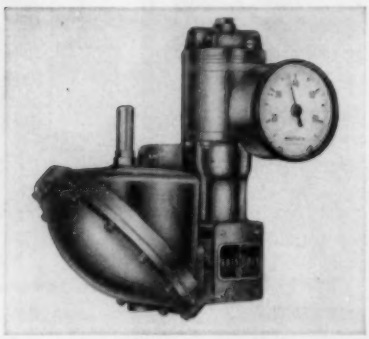
COMPOUND PRESSURE AND VACUUM

Ranges from 15" mercury to 0 to 150 psi.



TEMPERATURE

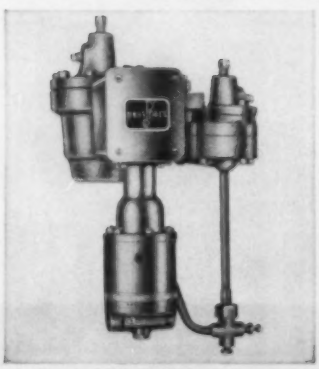
Ranges as low as —100°F, as high as 5000°F.



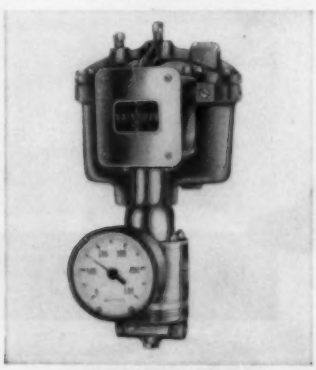
ABSOLUTE PRESSURE

Ranges as low as 0 to 5mm of mercury and up. Available in bronze or stainless steel.

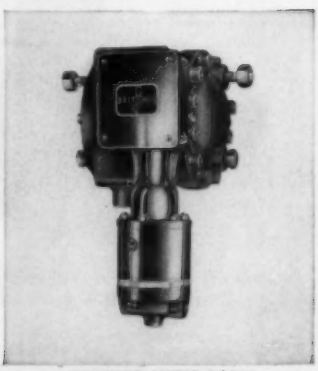
DIFFERENTIAL PRESSURE AND FLOW. Ranges as low as 0 to 1" water and up. Offered in a variety of meter bodies to satisfy almost any requirement or preference, including:



MERCURY MANOMETER



BELL-TYPE ELEMENT



DRY-TYPE METER BODY

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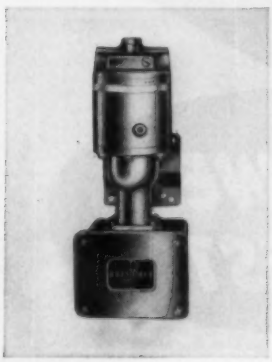
pneumatic transmitters
range and widest coverage

liquid level, and mechanical motion

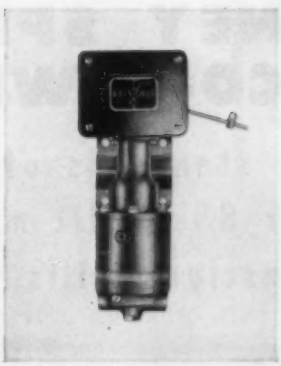


LIQUID LEVEL

Full range of applications from water and other liquids in tanks, open and closed vessels of all kinds; weirs, canals and reservoirs—pressure and bubbler types—for corrosive conditions and solid-bearing liquids.

MECHANICAL MOTION

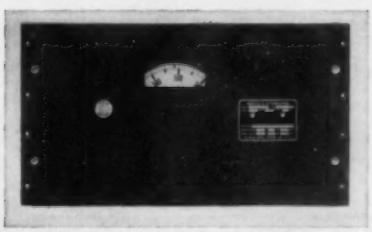
For measuring and transmitting any mechanical motion such as float motion, gate position, or valve stem action, as well as others.



Indicators can be furnished on all transmitters.

MEASURE ELECTRONICALLY, TRANSMIT PNEUMATICALLY

with Dynamaster Electronic Potentiometer Transmitter. Input signal may be a voltage, current or change in resistance, capacitance, or inductance. Output is a pneumatic signal proportional to measurement. Ideal for pH, speed, viscosity, density, strain, force, dew point and other measurements requiring electronic transducer.



Measure almost any variable, transmit universal 3-15 psi* pneumatic signal to a recording receiver or controller

Get the widest variety of pneumatic transmitters on the market in the Bristol 650 Metagraphic line.

They offer you more models and a variety of lower ranges, higher ranges and easily adjustable partial ranges that no other line of pneumatic transmitters can match. Check these Metagraphic advantages:

Easy maintenance. Spare parts are cut to a minimum with the Metagraphic transmitter. The reason: all transmitters are basically the same; only the measuring elements and their housings differ.

Uses standard Bristol measuring elements. The same standard, highly developed and proven Bristol measuring elements that are used in Bristol recording and controlling instruments are used in the Metagraphic transmitter. They are the result of 68 years of research and experience in building hundreds of thousands of instruments for practically every application, and incorporate the latest engineering developments in the field. These high-torque measuring elements, with wide-angle travel, give powerful, positive operation.

Rugged, weatherproof. Bristol Metagraphic transmitters are extremely rugged. They are weatherproof and can be installed anywhere.

Range easily adjustable. The locations of partial ranges are easily adjustable through wide range limits on most transmitters. The span of a given transmitter can also be changed without difficulty. It is therefore no longer necessary to know and specify the exact range in advance, when ordering transmitters.

Thousands of Bristol Metagraphic transmitters are already in operation, giving reliable, trouble-free service. Find out how their advanced design can simplify your measurement, recording, and control problems. Write the Bristol Company, 103 Bristol Road, Waterbury 20, Conn. 6.83

**Other transmitting pressures also available.*

BRISTOL

BRISTOL'S

TRAIL-BLAZERS IN PROCESS AUTOMATION

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THE NEWEST & BEST

GWALTNEY SPINNING *by* SACO-LOWELL

Creating new standards of production in over 85 profit minded, cost conscious mills

Gwaltney Spinning Frames have demonstrated beyond doubt, through their outstanding performance, that they produce stronger, far more even yarns, of higher grade than the same count yarn produced from the same stock by "yesterday's" spinning. . . . This noticeable improvement in quality has occurred with lower operating costs and increased production. All result in higher profits.

Why wait . . . join the trend toward Gwaltney. A Saco-Lowell Engineer will gladly prepare a **"Forecast of Savings"** based on a **Saco-Lowellizing Program** which includes Gwaltney Spinning for your mill.

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD & SACO, MAINE; SANFORD, N.C.; EASLEY, S.C. Sales Offices: CHARLOTTE · GREENSBORO · GREENVILLE · ATLANTA

IMPORTANT ANNOUNCEMENT!

from the Man of Many Talents

FLUFdyed

TRADE MARK

A New, Exclusive Method of Dyeing Hi-Bulk Orlon* Yarns

Franklin's FLUFDYED procedure overcomes the objections found with previous methods of yarn dyeing Hi-Bulk Orlon.

Because the yarn is fully bulked when dyed, the following advantages are realized:

KNIT TO SIZE — Garments can be knitted to size, thus eliminating size variations which take place when dyeing occurs after knitting.

MINIMIZED FINISHING — The necessity of additional tumbling after knitting is eliminated and only steaming is required in order to achieve a soft hand.

PATTERNS AND STRIPES — The field is open for multi-colored style creations without the necessity of long deliveries from spinner to knitter.

Ask "the man of many talents" — your Franklin Process Representative — about FLUFDYED Hi-Bulk Orlon yarns. Tell him your requirements. He'll be glad to make recommendations.

*Dupont's Acrylic Fibre

Franklin Process

Yarn Merchants & Largest Package Dyers in the World

Providence • Philadelphia • Greenville

Chattanooga • Fingerville, S. C.

New York office — 280 Madison Avenue

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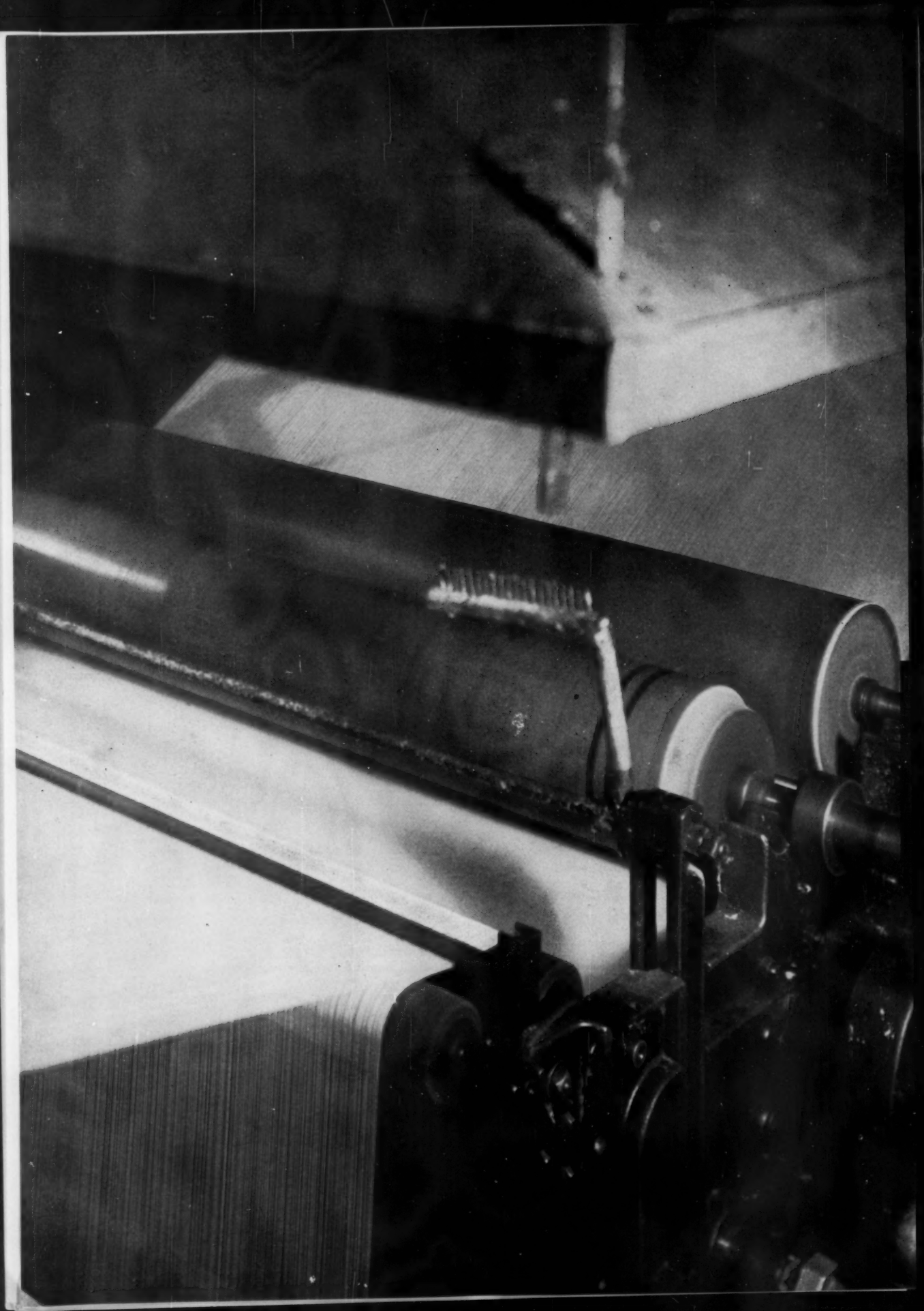


Why Dayco Slasher Rolls
give faster, lower cost slashing

Mill after mill has increased slashing speeds, reduced costs and produced more uniformly sized warp yarns by using Dayco Thoro-Size Slasher Rolls in *both* front and back roll positions.

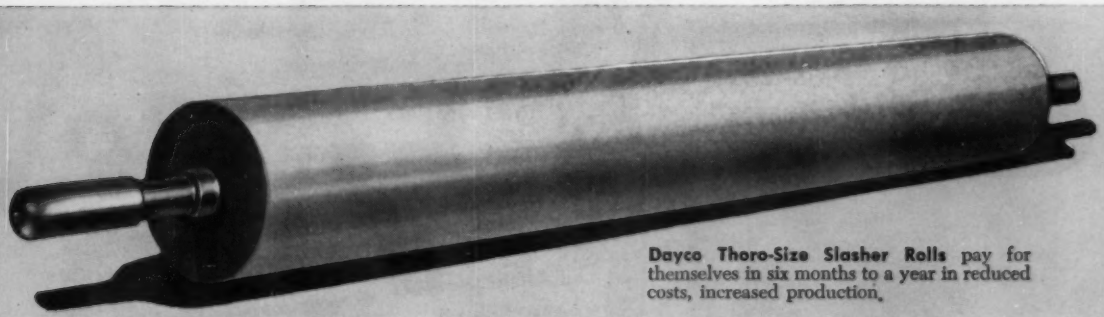
In test after actual test, Dayco Rolls proved they give more even size pick-up. That's because they're available in a finish to meet your exact sizing requirements.

Dayco Rolls meter size more accurately because they have the finish you need plus the "perfect cushion" provided by special synthetic Dayco compounds.

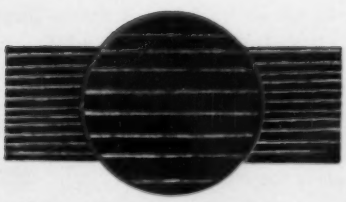
These two factors—improved size pick-up, and control of size within desired limits—permit most mills to increase slasher speeds remarkably . . . some as much as 40-45%.

Most important, Dayco Slasher Rolls eliminate the material costs, slasher downtime and labor required to maintain blankets. In addition, more precise metering of size results in considerable savings in starch costs. And, Dayco Slasher Rolls pay for themselves in reduced costs within six months to a year.

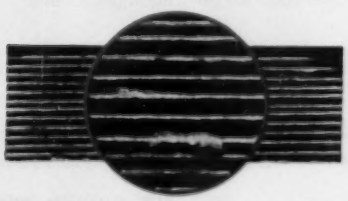
The result of more than eleven years of research, Dayco Thoro-Size Slasher Rolls are unaffected by oils or chemicals, retain their resiliency for long periods of time, and can be easily resurfaced for double and triple service life.



Dayco Thoro-Size Slasher Rolls pay for themselves in six months to a year in reduced costs, increased production.



Clean, uniform sizing proves superior performance of Dayco slasher rolls



Irregular sizing denotes inadequate control of ordinary slasher rolls

Your Dayco representative will stop in to see you soon. Ask him for details on how Dayco Thoro-Size Slasher Rolls can help you step up slasher speeds, get more uniform yarn and cut maintenance costs. Or write The Dayton Rubber Co., Textile Division, 401 S. C. National Bank Building, Greenville, South Carolina.

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Dayton Rubber

Dayco and Thorobred Textile Products for Better Spinning and Weaving

THE INVISIBLE PLUS IN NYLON BY

ENKA

FOR LONG WEAR
excellent abrasion resistance

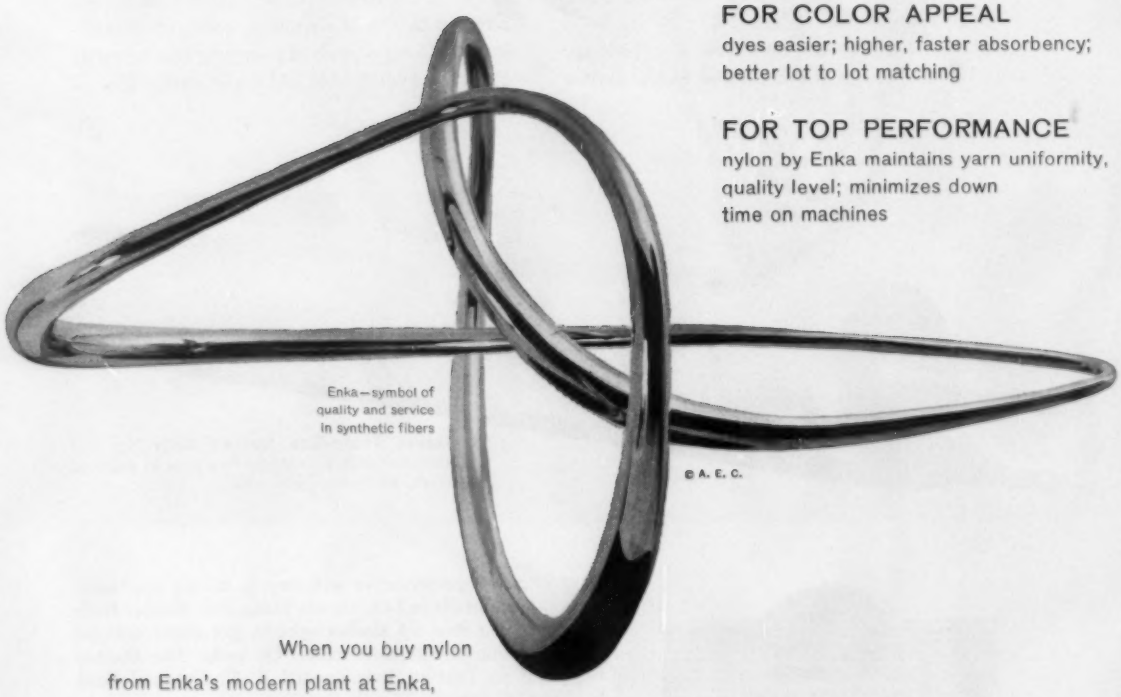
FOR EASY CARE
washable, dry cleanable, spot cleanable

FOR QUICK DRYING
the sales appeal of convenience

FOR ECONOMY
long wear cuts down expense

FOR COLOR APPEAL
dyes easier; higher, faster absorbency; better lot to lot matching

FOR TOP PERFORMANCE
nylon by Enka maintains yarn uniformity, quality level; minimizes down time on machines



Enka—symbol of quality and service in synthetic fibers

© A. E. C.

When you buy nylon from Enka's modern plant at Enka, North Carolina, you get all of the fine qualities of nylon itself and *more.* This plus is the most important point of all—Enka's lively interest and active help in making *your* operation an outstanding success!

AMERICAN ENKA CORPORATION PRODUCERS OF JETSPUN® • FILAMENT AND STAPLE RAYON • FILAMENT AND STAPLE NYLON

530 Fifth Ave., New York 36, N. Y. • 871 McCallie Ave., Chattanooga, Tenn. • 428 Jefferson Standard Bldg., Greensboro, N. C. • 2001 Industrial Bank Bldg., Providence, R. I.

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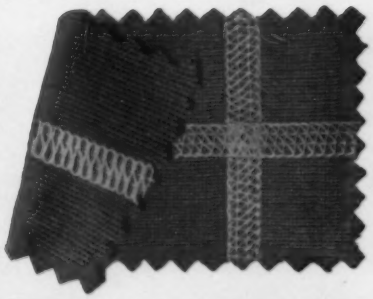
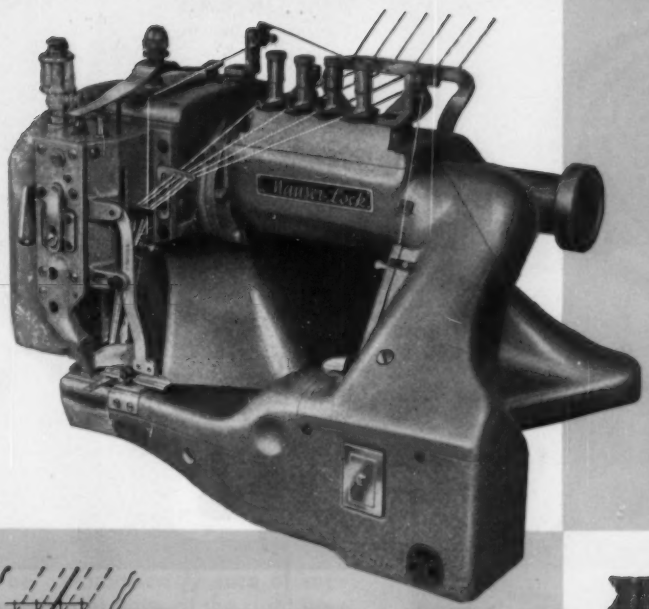
For this seam

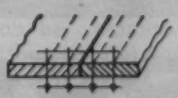
the *Mauser-Lock*

model C 46 211





MAUSER SPEZIAL IWK



The MAUSER-LOCK SEAM is extraordinarily flexible, because with 4 needles only 6 threads are used in sewing—viz. 4 needle threads, 1 looper thread and 1 laying thread.

By means of a horizontally working trimming device, which is installed in the presser foot, the edges of the fabric are evenly cut and then sewn and covered edge to edge. Thus is produced the perfectly flat, extremely neat and remarkably flexible MAUSER-LOCK SEAM.

Please ask for folder 3 E 64

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GERMANY

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Use and reuse...

CHEESE CORES

for firmer packages – for better delivery

SONOCO's sturdy and economical DUROWELD cores are the type carriers essential for repeated use in winding good packages of yarn. Cores produced by the exclusive DUROWELD process are held to micrometer tolerances and are accurately balanced — assuring good performance during high speed winding and take-off. Standard sizes to fit Abbott Automatic Winders and Barber-Colman Spoolers. Special sizes also available.

Remember—for the best packages, use the best carriers—try SONOCO's DUROWELD cheese cores—another development for industry from SONOCO's research laboratories.

sonoco
KNOWS THE WORLD
PAPER CARRIERS
REG. U.S. PAT. OFF

SONOCO PRODUCTS COMPANY

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Eliminate costly lubrication down-time... increase yield at lower operating cost with Lincoln CENTRALIZED LUBRICATION SYSTEMS

On Owens-Corning flyer twisters . . . down-time eliminated by modern automatic lubrication

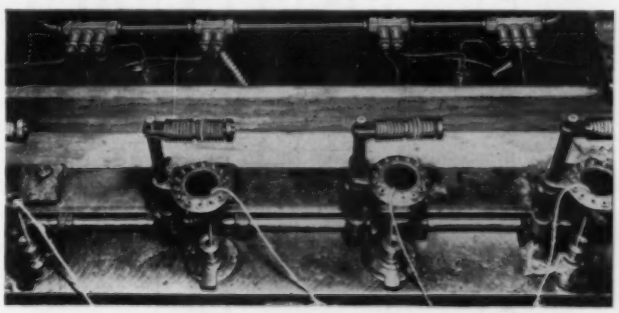
"There's no more down-time due to faulty lubrication, thanks to Lincoln. As a result of the use of Lincoln Centralized Lubrication Systems on high-speed textile flyers, twisting yarns in our Ashton plant, there has been no loss of production due to improper lubrication. We find Lincoln's Centralized Lubrication System very reliable, since it is fully automatic."

Reports E. Bay, Chief Engineer, Owens-Corning Fiberglas Corp.

You can be *automatically* sure of supplying the right quantity, at the right time with Lincoln Centralized Systems. These Power Lubrication Systems apply viscous fluid lubricants to bearings on individual machines or automated production lines, at predetermined time intervals . . . unerringly . . . automatically . . . while the machines are operating!

Textile mills and plants throughout the country have made impressive cost savings and production gains with these modern Lincoln installations. Call your nearby Lincoln Distributor. Write for Bulletins 811 and 806-R.

● View shows Lincoln CentrOmatic* Pump . . . serves distribution system of lubricant injectors connected to machine bearings.



● Lubricant injectors, one for each bearing, are permanently attached to bearings by steel feed lines.

*Trade Name Registered

Lincoln
THE MOST TRUSTWORTHY NAME IN LUBRICATING EQUIPMENT

LINCOLN ENGINEERING COMPANY
Division of The McNeil Machine & Engineering Co.
5742 Natural Bridge Avenue • St. Louis 20, Missouri

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Reference Chart

BEMBERG® RAYON NOVELTY YARNS

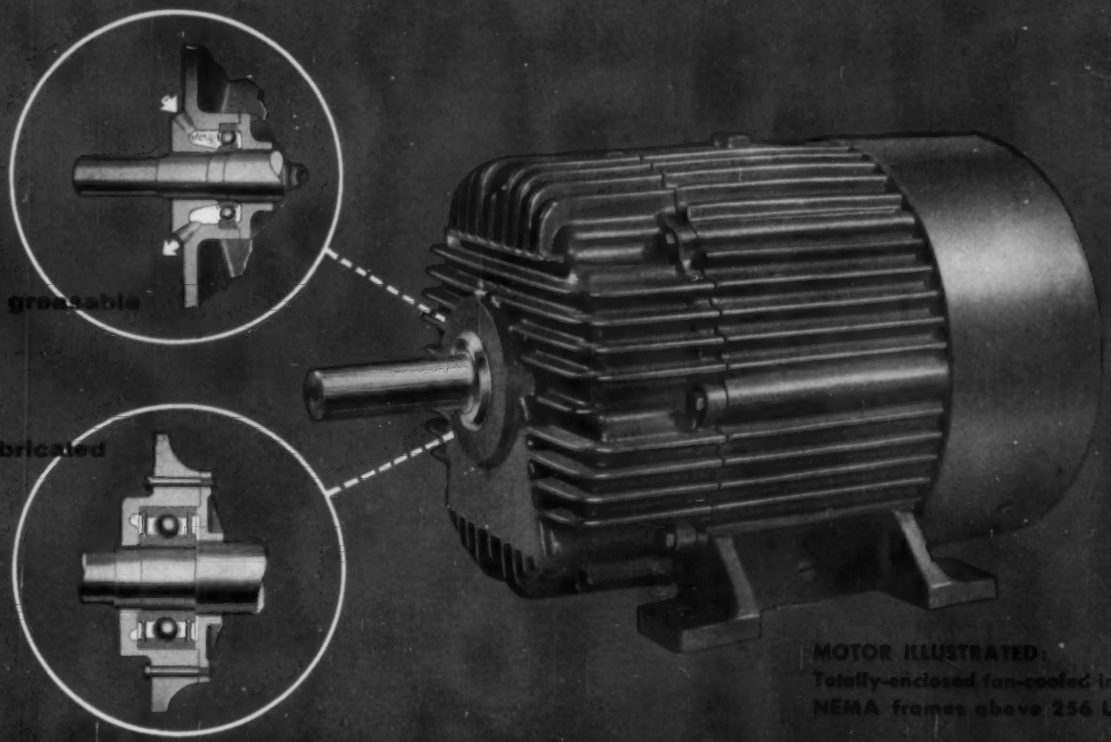
TYPE YARN	DESCRIPTION	DENIERS	FUNCTION	COLORS	FABRIC END-USE
NUB-LITE	High-low, non-mechanical, short entangled slub, irregular in size and spacing. (Also specials running part slub, part smooth).	160-200 315-410 600-860	Filling with acetate, silk, or Chromspun warps.	Natural for piece-dyed fabrics. 36 direct skein-dyed colors for loom-finished fabrics.	Lower deniers in dress and blouse fabrics. Heavier deniers for draperies, upholstery, bedspreads.
CUPIONI®	Longer entangled slub, irregular in size and spacing, but mechanically controlled for the Douppioni silk-look.	50-70-100 150-285-450 900	Filling with cotton, acetate, silk or Chromspun warps.	Natural for piece-dyed fabrics. 36 direct skein-dyed colors for loom-finished fabrics.	Fabrics for dresses, blouses, slacks, ladies' and men's suits.
LONG TYPE "A" SLUB	Long, parallel, non-entangled slub for the true thick and thin look. Soft hand.	150-290 460-600 900-1180-2500	Filling with acetate, silk, or Chromspun warps.	Natural for piece-dyed fabrics. 36 direct skein-dyed colors for loom-finished fabrics.	Lower deniers in dress and blouse fabrics. Heavier deniers for draperies, upholstery, bedspreads.
MEASLE YARN	Part tight, part loose filaments with different shrinkage . . . forming loop or boucle effect. In weaving, loops break through surface of fabric for decorative dot effect.	1200-2350 3400	Filling with acetate, silk, or Chromspun warps.	Natural for piece-dyed fabrics. 36 direct skein-dyed colors for loom-finished fabrics.	Lower deniers as filling in dress and blouse fabrics. Heavier deniers for upholstery, draperies, bedspreads.
STRATA SLUB **MULTI-STRATA SLUB** **DREAM SLUB**	Torpedo shaped slubs spaced: Strata, 9' apart; Multi-Strata, 6' apart; Dream, 18" apart.	150-275 450-600-960 1300-2600-5400	Filling with acetate, silk, or Chromspun warps.	Natural for piece-dyed fabrics. 36 direct skein-dyed colors for loom-finished fabrics.	Upholstery, draperies, bedspreads.
FLAKE SLUB	Short, entangled slub similar to flake slubs made with staple yarn.	300-600	Filling with acetate, silk, or Chromspun warps. As multi-colored decorative yarn. Plied with any Bemberg yarn.	Natural for piece-dyed fabrics. 36 direct skein-dyed colors for loom-finished fabrics.	Upholstery, draperies, bedspreads.
FLAIKONA	Part of the end running normal and part running with flake slub. Similar in softness and appearance to other flake, and will run in filling without being plied with a straight yarn.	300-625-900	Filling with silk, cotton, acetate, nylon, Chromspun, Fortisan, Dacron, or Orlon warps. As multi-colored decorative yarn. Plied with any Bemberg yarn.	Natural for piece-dyed fabrics and spun-dyed Cupracolor black.	Upholstery, draperies, bedspreads.

NOTE: CUPIONI — 150-285-900 deniers are available in 14 solution dyed colors.
STRATA — 600-960 deniers are available in 14 solution dyed colors.

Bemberg®
ARISTOCRAT OF RAYON YARN

AMERICAN BEMBERG • Main Office: 261 Fifth Avenue, New York 16, N.Y. • Plant: Elizabethton, Tennessee

YOUR CHOICE of motor bearings . . .



—when you specify ELLIOTT Crocker-Wheeler Type N integral horsepower motors

Whatever your operating conditions or maintenance practice, Crocker-Wheeler offers the motor bearing best adapted to your needs or preference.

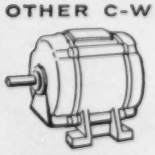
The Open Greasable type
requires only infrequent lubrication. All old grease is positively flushed out, eliminating risk of forcing grease into motor interior. An external grease reservoir helps seal and protect the bearing. The inner cap and grease reservoir prevent rust or corrosion from within.

Prelubricated bearings
are furnished for applications requiring operation without regular service lubrication. They are sealed cartridge-type, factory grease-filled, with inner protective cap.

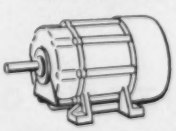
Choice of bearings
is another design feature of the new Elliott Type N motor line. These motors are honestly new—inside and out. We think you'll agree that they incorporate every important feature that distinguishes a modern motor.

W7-1

OTHER C-W TYPE N MOTOR ENCLOSURES


Totally-enclosed non-ventilated

Dripproof Protected


Totally-enclosed, fan-cooled Frames 256 U and smaller

ELLIOTT Company
CROCKER-WHEELER DIVISION
Jeannette, Pennsylvania

We will be glad to send a copy of this new booklet describing the complete line of Elliott C-W type N motors. Ask for Bulletin PB 6000-6.

if you make any of these products—or sell to any of these industries...

- Automotive Seat Cushioning
- Automotive Side Panelling
- Baling Paper
- Body Armor
- Braided Hose
- Cargo Tie-Down Webbing
- Coated Fabrics
- Collapsible Storage & Transportation Tanks
- Conveyor Belts
- Cotton Combination Ducks
- Cure Wrap Tapes
- Cushioning Material
- Dense Non-Woven Fabrics
- Diaphragms
- Dictating Machine Cords
- Electrical Blanket Tinsel Conductors
- Electrical Cable Filler
- Electrical Cable Wrap Fabrics & Tapes
- Electrical Coil Insulation
- Electrical Shaver Cords
- Electrical Typing & Lacing Cords
- Electrical Wire Covering
- Fire Hose
- Fish Nets
- Flare Parachute Fabrics
- Gummed Paper Packaging Tape
- Hearing Aid Cords
- High Pressure Bandages
- Household Deodorant Wicks
- Inflatable Dunnage Bags
- Inflatable Structures
- Industrial Batting
- Industrial Felts
- Knitted Automotive Radiator Hose
- Knitted Garden Hose
- Low Stretch Tent Structure Webbing
- Oil Filters
- Oil Suction & Discharge Hose
- Paint Rollers
- Plastic Surfacing
- Ponchos
- Power Transmission Belts
- Pressure Sensitive Tape
- Sand Bags
- Spindle Tape
- Telephone Cords
- Varnished Electrical Tapes
- V-Belts
- Venetian Blind Tape
- Vinyl Coated Clothesline
- Vinyl Laminated Protective Covering Fabrics
- Water Filter Cartridges
- Webbings
- Wrapped Hose

Celanese fibers and Celanese knowledge can prove invaluable to you

These are the names that can form the products of the future: Acetate, Arnel Triacetate, Fortisan-36 rayon, and Celacloud Acetate—Celanese fibers for industry. They're engineered to do many jobs better—at lesser prices.

We offer not only Celanese fibers but Celanese skills—from fabric development in our plants to technical assistance in yours.

Let us show you how rewardingly Celanese fibers can help your future too. Call your Celanese representative now!

Celanese Corporation of America, Sales Development Department, Textile Division, Charlotte, North Carolina. Celanese®

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P. O. Box 1414
Charlotte 1, N. C.

200 Boylston St.
Chestnut Hill 67, Mass.

819 Santee St., Los Angeles, California

Export

Amcel Co., Inc. and Pan Amcel Co., Inc.
180 Madison Ave.,
New York 16, N. Y.

In Canada

Chemcell, Canadian Chemical & Cellulose Co., Ltd.
2035 Guy St.
Montreal

Celanese CONTEMPORARY FIBERS

ARNEL® TRIACETATE • FORTISAN®-36 RAYON • CELACLOUD t.m. ACETATE • VISCOSE • RAYON

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Anthrasol Red Violet IRRN
Anthrasol Red Violet IRH
Anthrasol Printing Violet IRR
Anthrasol Printing Violet IBBF
Anthrasol Brilliant Violet I4R

Indigosol Red Violet IRRL
Indigosol Printing Purple IR
Indigosol Violet I5R
Indigosol Bordeaux I2RN

Anthrasol O
Anthrasol O4B
Anthrasol O6B
Anthrasol O4G
Anthrasol Printing Blue IGG
Anthrasol Blue IBC Powder
Anthrasol Blue IBC Paste

Indigosol OR
Indigosol Blue IRS

Anthrasol Yellow GCN
Anthrasol Yellow HCG
Anthrasol Yellow V
Anthrasol Printing Yellow I3G
Anthrasol Printing Yellow 4G
Anthrasol Golden Yellow IGK
Anthrasol Golden Yellow IRK

Indigosol Yellow R
Indigosol Yellow 2GB
Indigosol Golden Yellow AR

ANTHRASOLS® / INDIGOSOLS®

the complete line

Anthrasol Golden Orange I2R
Anthrasol Brilliant Orange IRK
Anthrasol Orange HR

Indigosol Orange I8RA

Anthrasol Scarlet HB
Anthrasol Scarlet IB
Anthrasol Printing Scarlet GG

Anthrasol Pink IR
Anthrasol Brilliant Pink I3B
Anthrasol Red IFBB

Indigosol Red I2B
Indigosol Red AB

Anthrasol Green IB
Anthrasol Green IBA Powder
Anthrasol Green IBA Paste
Anthrasol Green IGG
Anthrasol Green I3G
Anthrasol Olive Green IB
Anthrasol Olive Green IBB

Anthrasol Grey IBL
Anthrasol Grey IHL
Anthrasol Grey IT
Anthrasol Blue Black IRD
Anthrasol Printing Black IB
Anthrasol Printing Black IGR

Indigosol Grey I3F
Indigosol Black AB2N

Anthrasol Brown IBR
Anthrasol Brown IRRD
Anthrasol Brown IRRD Supra

Indigosol Brown I3B

CARBIC COLOR & CHEMICAL CO., INC.
451 WASHINGTON STREET • NEW YORK 13, N. Y.
CHARLOTTE • PROVIDENCE • PHILADELPHIA • COLUMBUS • LOS ANGELES • HAMILTON, ONTARIO

SELLING AGENT FOR
HOECHST CHEMICAL CORP.
WEST WARWICK, R I.

REPRESENTATIVE OF
FARBWERKE HOECHST AG.
FRANKFURT (M), WEST GERMANY

Importer of the manufactures of Durand & Huguenin S. A., Basle, Switzerland

HOECHST

ANTHRASOLS® / INDIGOSOLS®

for pastel shades

- CONTINUOUS DYEING
- SAME FASTNESS AS PARENT VAT DYE
- LOWER COST
- HIGH SPEED
- AVOID SPECKING
- UNIFORM RESULTS

CARBIC COLOR & CHEMICAL CO., INC.
451 WASHINGTON STREET • NEW YORK 13, N. Y.

CHARLOTTE • PROVIDENCE • PHILADELPHIA • COLUMBUS • LOS ANGELES • HAMILTON, ONTARIO

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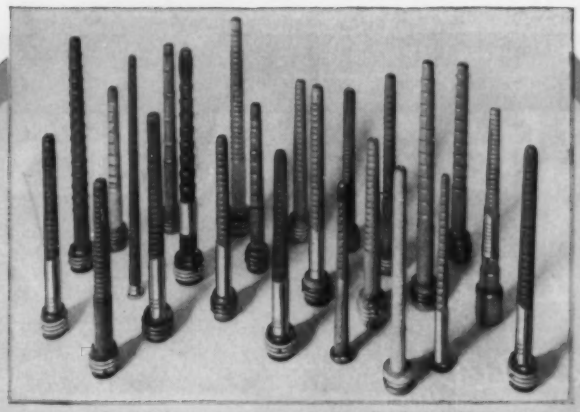
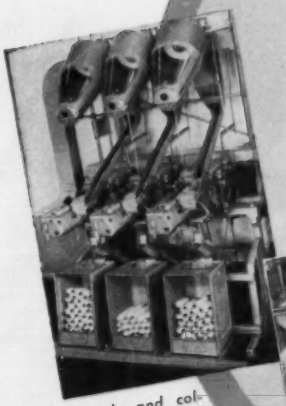
HOECHST



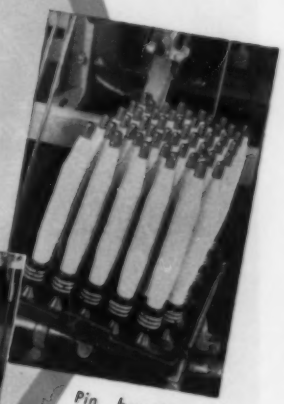
A few of the many types and sizes of filling bobbins that can be profitably run on the Fill-Master Winder.



Exhaust hoods and collectors for mills having dust and fly in winding area.

Multi-cell empty bobbin magazine for magazine creeling or single packages.

Packing device for orderly, clean storage of filled bobbins.



Pin boarding arrangement for synthetic yarns.

Only the Whitin-Schweiter FILL-MASTER* Filling Winder

Gives you such Complete FLEXIBILITY and ADAPTABILITY

Whitin-Schweiter Fill-Master* Winder with Bobbin Loader

Flexible . . . . for fully automatic winding of cotton, wool, worsted, synthetics and blends.

Adaptable . . . to a broader range of mill requirements than any other winder thru its complete line of optional accessories (see illustrations)

These are only two of many outstanding advantages, including:

- Machine speeds up to 10,000 R. P. M.
- Speed of individual spindles adjustable
- Bobbins up to 10⅛" • Tail-less bobbins
- Variable layer locking traverse prevents sloughing
- Maintains uniform winding diameters, resulting in more yardage per bobbin

*Trade Mark

Whitin MACHINE WORKS

WHITINSVILLE, MASS.

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

Manufactured by **WHITIN** *for sale in U. S. A. and Canada*
and by **SCHWEITER, LTD., Horgen (Zurich, Switzerland)** *for sale in other countries*

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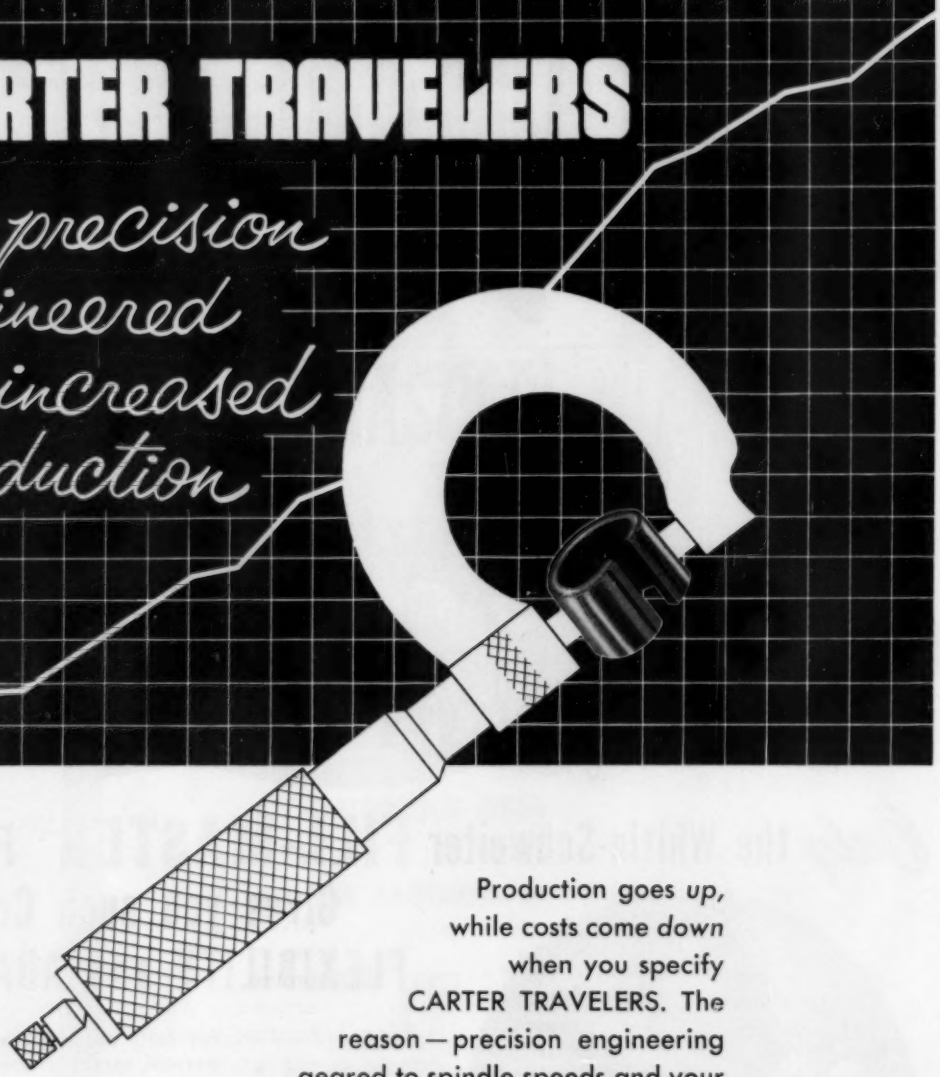
CARTER TRAVELERS

are precision engineered for increased production



Production goes *up*, while costs come *down* when you specify CARTER TRAVELERS. The reason—precision engineering geared to spindle speeds and your requirements, plus the dependable *QUALITY* of a laboratory controlled product and the *SERVICE* of an experienced organization.

Division of **A. B. CARTER, INC., GASTONIA, N.C.**
Manufacturers of The Boyce Weavers Knotter

Carter TRAVELER COMPANY

REPRESENTATIVES

R. A. Haynes, Special Representative..114 W. Fifth Ave., Gastonia, N. C.
W. L. Rankin.....501 S. Chester St., Gastonia, N. C.
D. E. Phillips.....2702 Garden Lakes Blvd., Rome, Georgia
P. L. Piercy.....128 Hudson St., Spartanburg, S. C.
J. R. Richie.....1307 Crabapple Lane, Raleigh, N. C.
J. K. Davis.....P. O. Box No. 129, Auburn, Ala.
C. E. Herrick.....139 Main St., E., Greenwich, R. I.
Oscar S. Lapham.....139 Main St., E., Greenwich, R. I.
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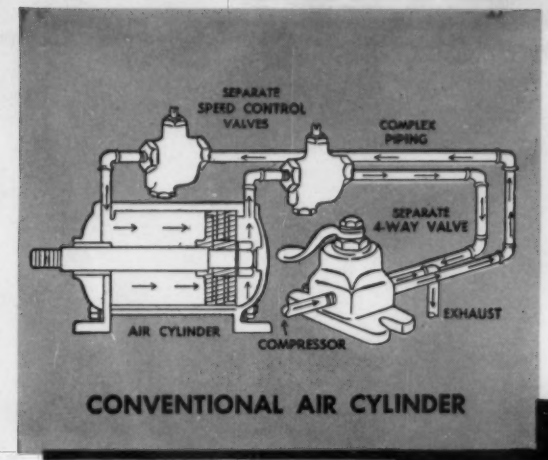


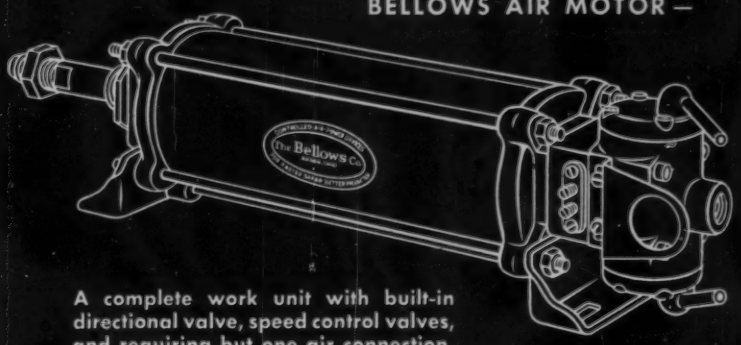
CONVENTIONAL AIR CYLINDER

ONE LOOK

and you can see the

SAVINGS

THE COMPACT, STREAMLINED
BELLOWS AIR MOTOR—



A complete work unit with built-in directional valve, speed control valves, and requiring but one air connection.

Design engineers looking for simplicity and economy in air circuit installations will find a quick answer in the two circuits sketched in this ad. One shows a conventional air circuit with separate air cylinder, separate speed control valves, separate directional valve and the piping required to install the circuit. The other shows the Bellows Air Motor—the complete air cylinder package—with directional valve and speed control valves built in, and its single air connection.

But simplification of design and installation problems is actually one of the less important advantages this compact power unit offers. The big advantages are precision control and improved performance. Response is lightning fast; action is smooth and positive. And coupled with improved performance is minimum maintenance —less time out for servicing.

The Bellows Air Motor offers you a choice of *built-in* directional valves: 8v or 110v electrical control, explosion-proof electrical control, manual control, or pilot valve control—in five bore sizes: 1″, 1¾″, 2½″, 3⅝″ and 4½″, and in any stroke length.

This new four-color, 24-page bulletin gives full technical data on Bellows Air Motors.

It is free on request. Ask for BM-25. Write Dept. TW-957. The Bellows Co., Akron 9, Ohio. In Canada, Bellows Pneumatic Devices of Canada, Ltd., Toronto.

The Bellows Co.

AKRON 9, OHIO

1379A

FIELD ENGINEER OFFICES IN EVERY INDUSTRIAL AREA IN THE UNITED STATES AND CANADA

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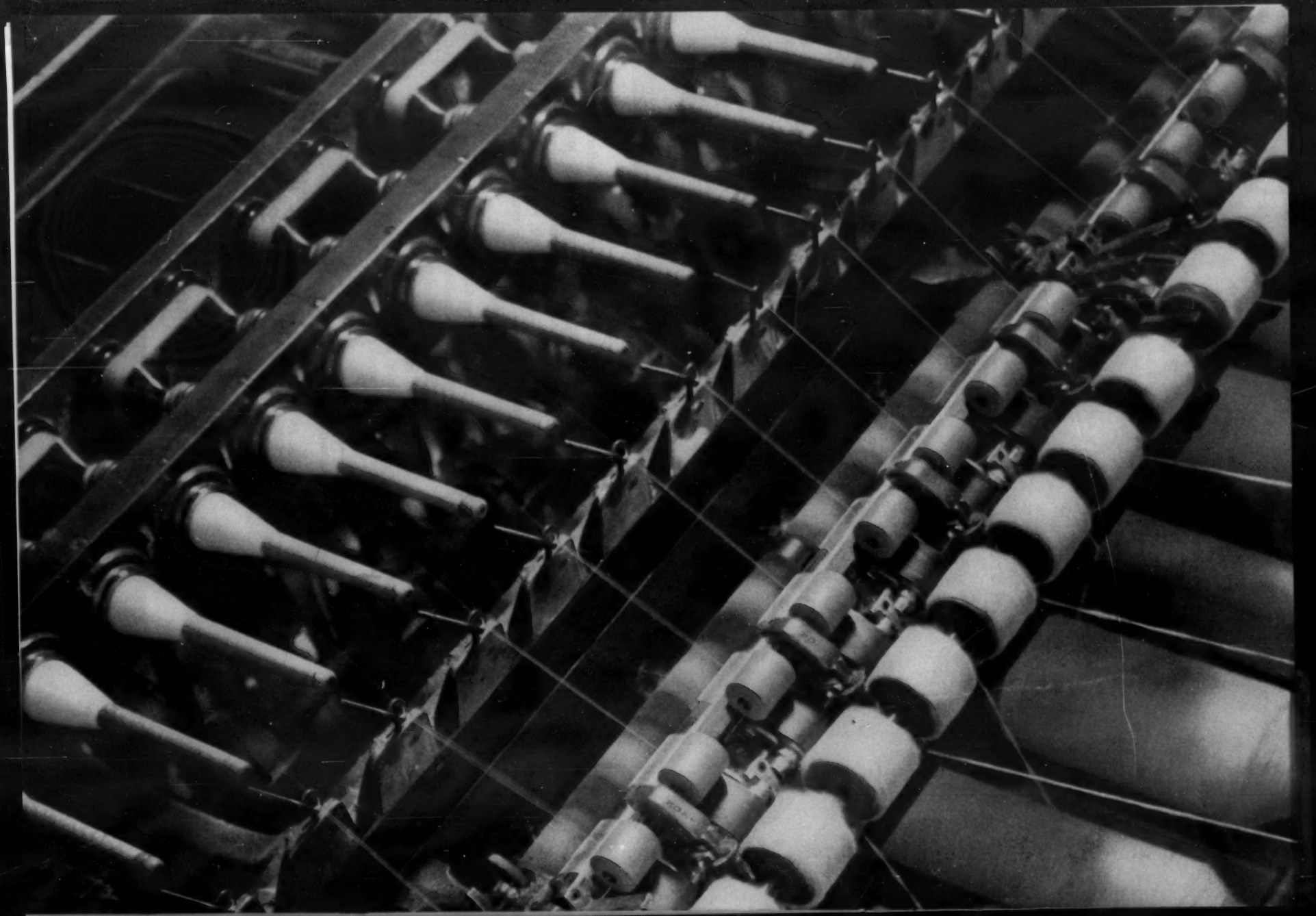


RIGHT...

and proved right... for any frame or fiber- Armstrong Accotex Cots

No matter what you're spinning—natural fibers, synthetics, or blends—and no matter on what equipment, there's an Accotex® Cot specially compounded and proved right for the job.

These cots will help you spin stronger, more uniform yarn, and at the same time minimize such things as lapping, eyebrowing, and yarn irregularities.

For example, hundreds of mills have reduced front roll laps to a minimum by using J-490 Cots. J-490 Cots have a special built-in electrolyte that actually tends to repel loose ends.

On some frames, high static aggravates the lapping problem because most of the metal-to-metal contacts have been eliminated. In these cases, many mills are discovering that one of the new Armstrong anti-static compounds is the answer.

Where eyebrowing is a problem, the Accotex NC-762 Cot—an anti-static material—will usually control it. This new cot is also substantially reducing clearer waste in many mills.

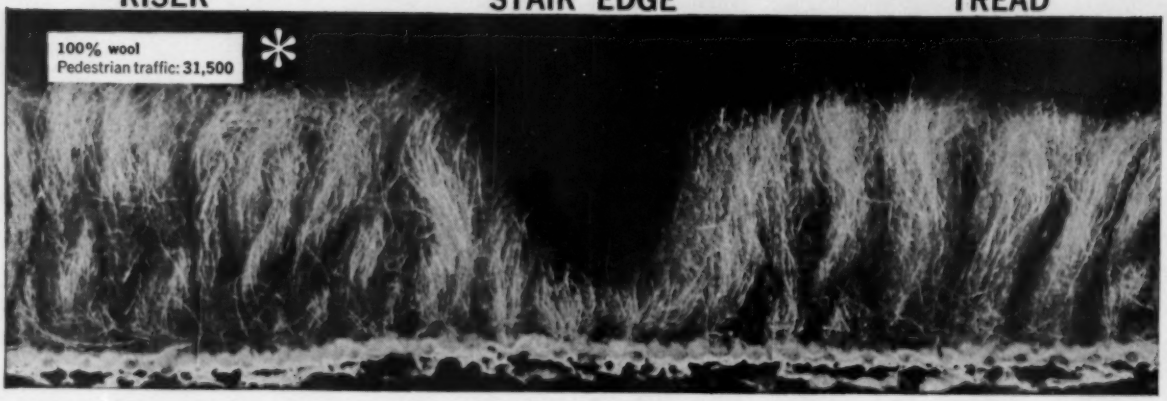
When considering any change in roll covering, it's a good idea to talk things over with your Armstrong man. His practical training and experience can be of help in choosing the right roll cover for best performance in your spinning room. Armstrong Cork Company, Industrial Division, 6509 Dauphin Street, Lancaster, Pennsylvania.

Armstrong ACCOTEX COTS

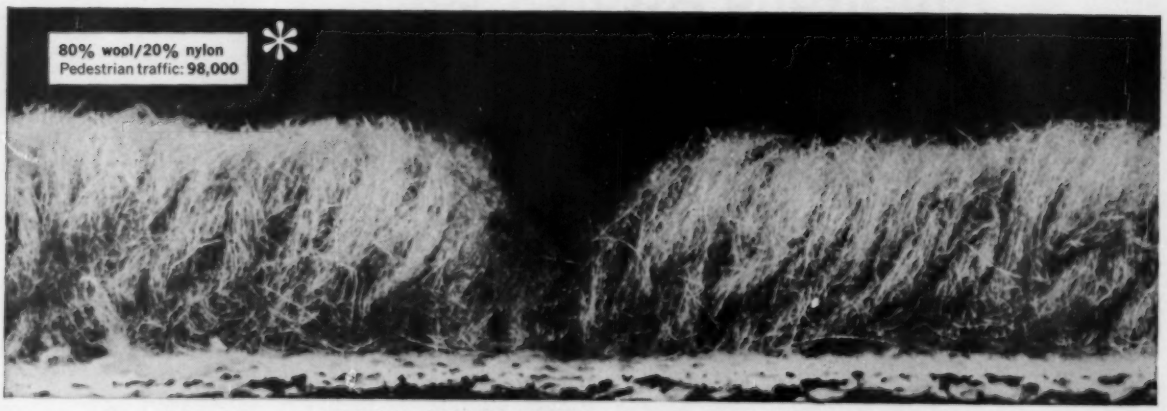
... used wherever performance counts

For more details on Accotex Roll Covers, or other Armstrong textile supplies, write for the booklet, "Armstrong Textile Products." It can help in selection and maintenance of Armstrong spinning and weave room supplies.

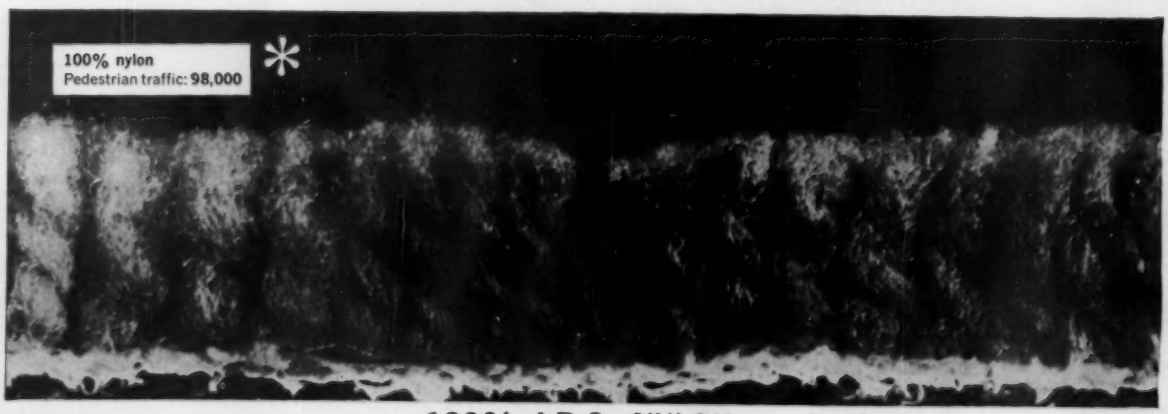
RISER STAIR EDGE TREAD



100% WOOL



80% WOOL/20% I.R.C. NYLON



100% I.R.C. NYLON

* Note that the 100% wool strip wore out almost completely with but one third the pedestrian traffic of the other two strips.

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in carpeting, nothing adds wear like NYLON!

How does it wear? That's one of the most important questions consumers ask about carpeting. Permanent textures, higher recovery from crush, excellent resistance to matting, and greater resiliency are other important performance characteristics consumers want to know about. Nylon has them *all*, and they've been proved not only in the laboratory, but in *actual wear tests, too!* Flame-resistance? Nylon does not support flame. *No other fiber adds durability to floor covering like nylon!* The toughest possible traffic test proves... The Higher The Nylon Content—THE LONGER THE WEAR!

THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION, Sales Office: 500 Fifth Avenue, New York 36, New York · 627 Guilford Building, Greensboro, North Carolina

wear... Nylon outwears wool and every other carpeting fiber known. In this test, identical*, unpadded strips of carpeting were laid on bare, rough steps in an industrial plant. Strips were rotated regularly. 100% wool broke down at 31,500 pedestrian traffic mark. 80% wool/20% nylon was still useable after 98,000 pedestrians. At same 98,000 mark, 100% nylon shows virtually no wear.

***strips of carpeting were identical except for fiber content.**

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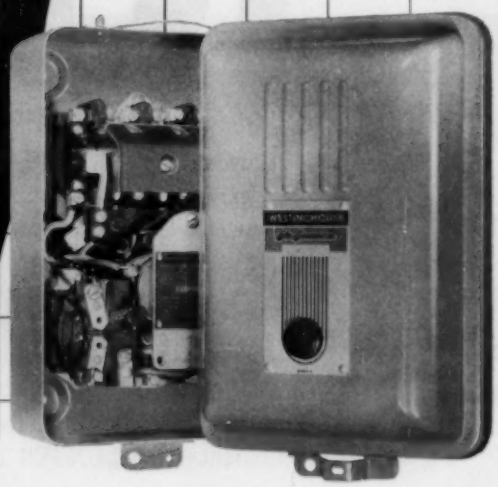
MORE HORSEPOWER!

LESS COST!

SMALLER SPACE!



with Westinghouse rerated motor starters

Here's real news for cost-conscious, space-conscious electrical planners.

Westinghouse Life-Linestarters® (sizes 0 and 1) *have been uprated* . . . giving you the advantages of more horsepower, less space, lower cost!

For example: if you've been controlling a 440-volt, 5-hp polyphase motor with a size 1 starter, you can get the identical control and protection with the smaller, less costly size 0 starter.

And speaking of performance . . .

Only Westinghouse starters have the De-ion® arc quencher, which greatly increases contact life by reducing burning and pitting.

Westinghouse starters utilize high-strength, non-carbonizing Rosite insulating parts for maximum safety and operating life.

Westinghouse starters have double-break, silver-to-silver contacts for longer life and greater dependability.

What's more, the entire starter line is designed to simplify installation and maintenance — featuring front-removable parts and straight-through wiring.

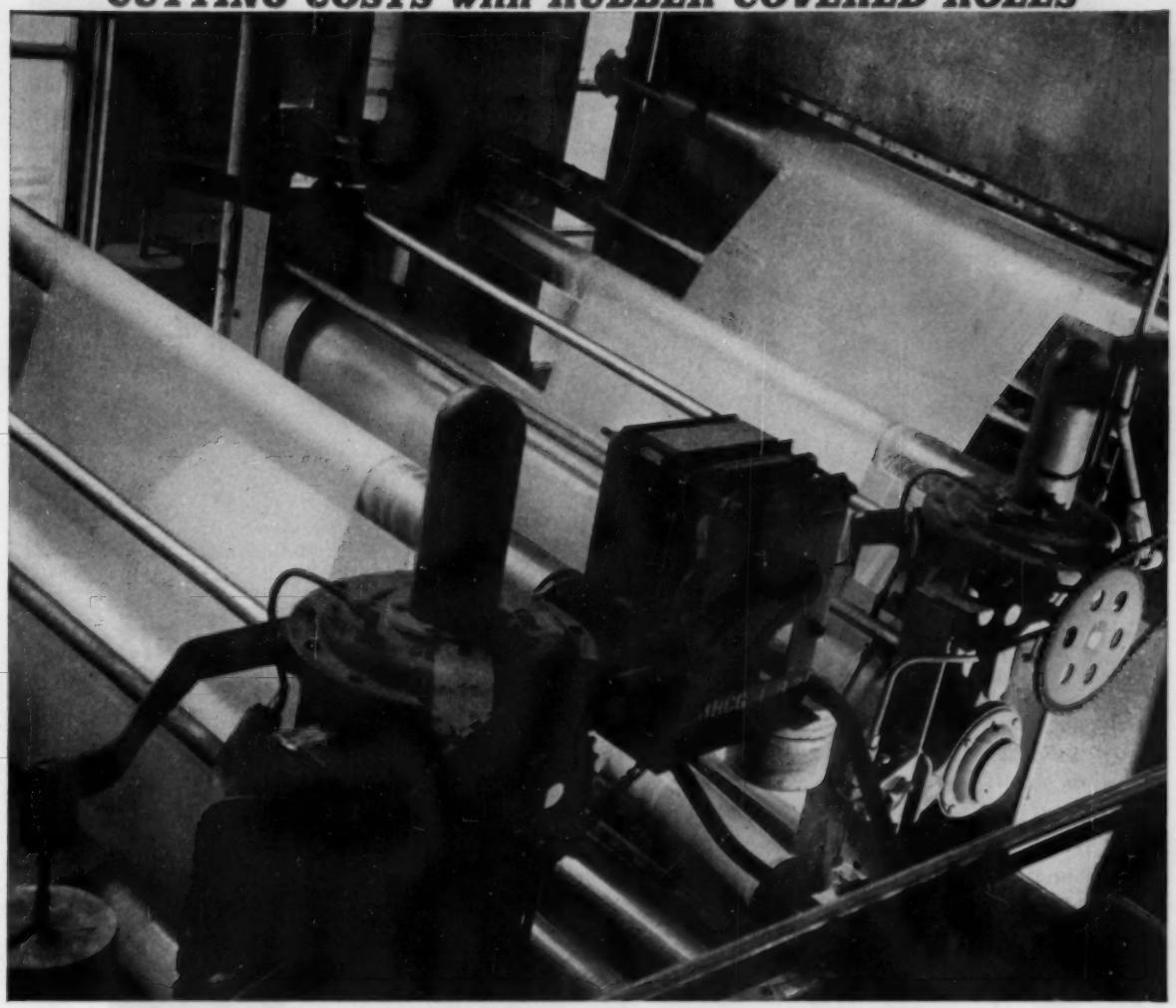
For the full story, contact your nearby Westinghouse sales office. Or write Westinghouse Electric Corporation, Standard Control Division, Beaver, Penna. J-30280

NEMA SIZE	110 Volt				220 Volt				440-600 Volt			
	1ø		3ø		1ø		3ø		1ø		3ø	
	Old Rating	New Rating	Old Rating	New Rating	Old Rating	New Rating	Old Rating	New Rating	Old Rating	New Rating	Old Rating	New Rating
0	1	1	1½	2	1½	2	2	3	1½	3	3	5
1	1½	2	3	3	3	3	5	7½	5	5	7½	10

Westinghouse uprated starters give you: More horsepower — in eight new starter ratings. Less cost and space — in applications where the rerated size 0 starter replaces the size 1 starter, and the size 1 replaces the size 2.

YOU CAN BE SURE... IF IT'S Westinghouse

CUTTING COSTS with RUBBER COVERED ROLLS



MAXIMUM EXTRACTION
reduces chemical carry over and chemical costs...

In a high speed continuous range finishing operation, one of the important advantages offered by high quality, well maintained rubber covered rolls is the reduced contamination of sweetwater and chemicals due to carryover from one stage to another. The efficiency of extraction at one stage also determines to a great extent, the efficiency of absorption and impregnation at the next, so that washing, bleaching, and dyeing operations all may be performed at higher speeds and with better results when the efficiency of extraction at the squeeze rolls is improved. Call your Stowe-Woodward Sales Engineer and discuss this point with him. Improving your operations is part of his job.

Complete roll processing plants at:
NEWTON UPPER FALLS, MASS.
NEENAH, WISCONSIN
GRIFFIN, GEORGIA

STOWE-WOODWARD, Inc.
Craftsmen in Rubber
RUBBER ROLLS with a REPUTATION

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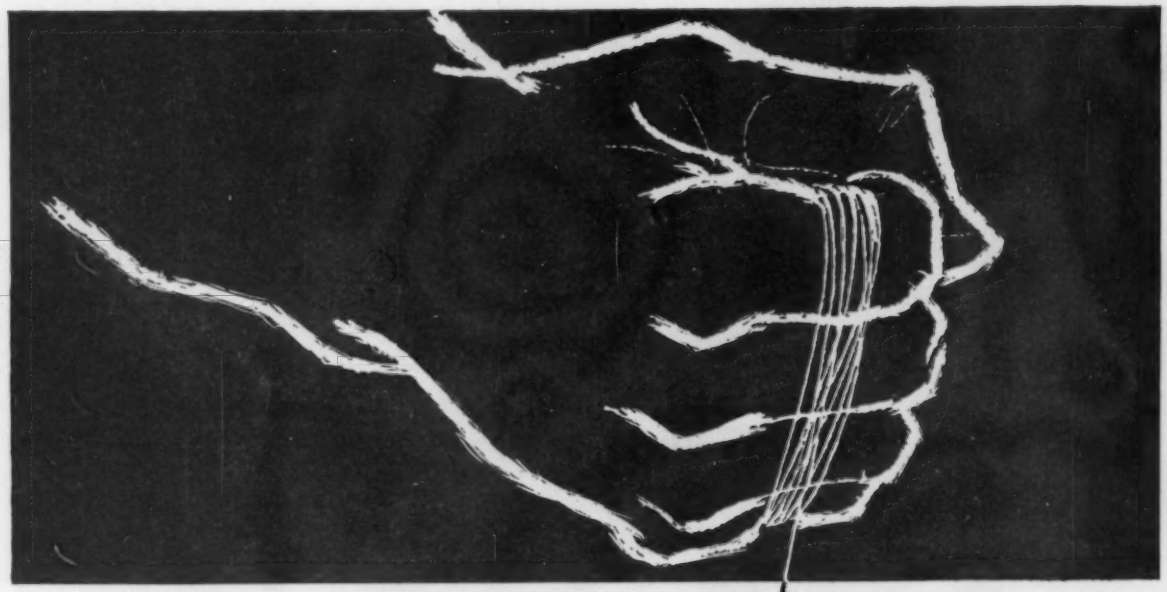


Now...Greater Strength in Lighter Yarns

No flexible reinforcing material equals this new Super Rayflex in *strength per dollar* . . . and it is now available in 600 and 900 denier as well as heavier sizes.

- It offers 4.5 grams per denier conditioned strength—a 40% increase over regular yarns.
- Its industrial uses include all reinforcing applications with laminates involving paper, mechanical rubber goods, plastics, polyethylene, scrim.
- To get equivalent strength plus comparable flex life in other fibers, you would have to pay 22% to 100% more.

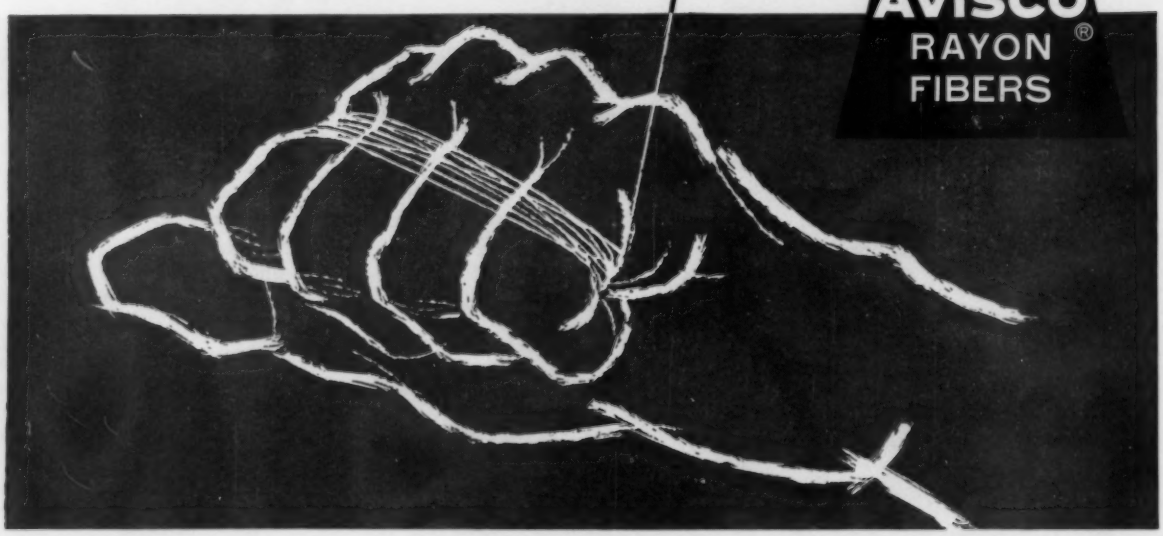
If you are looking for greater strength per dollar and excellent flex life, Super Rayflex is the reinforcing material you need.

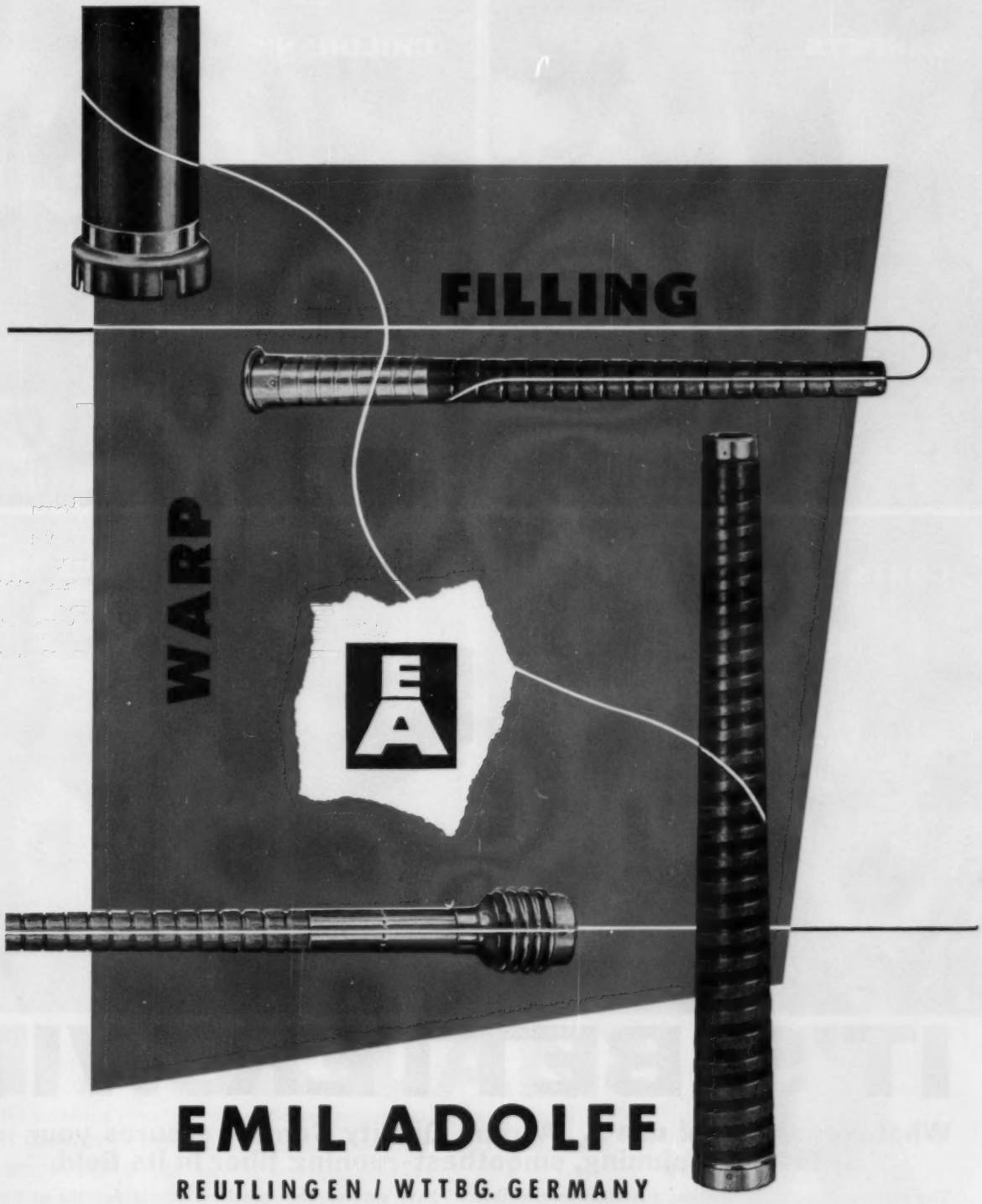
We invite your inquiry

Means Lower Reinforcing Cost with Avisco Rayon Yarns

American Viscose Corporation
350 Fifth Avenue, New York 1, N. Y.

AVISCO® RAYON FIBERS





EMIL ADOLFF

REUTLINGEN / WTTBG. GERMANY

Sales organization for the United States and Canada:

TEXTUBE CORPORATION 695 SUMMER ST., STAMFORD, CONN., FIRESIDE 8-9253

Southern Representatives:
Watson & Desmond, 220 West Fourth Street
Charlotte, N. C., Edison 3-6154

Canadian Representatives:
Crowther Limited, 212-214 Victoria Ave.
Westmount, Montreal, P.Q., Walnut 0148

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IT'S BETTER WIT

Whatever the final use . . . Acrilan Quality Control assures your mill of the top-spinning, smoothest-running fiber in its field.

The uniform top-quality of today's Acrilan acrylic fiber is the direct result of a control system based on specifications, tolerances and standards previously deemed impossible for the newer, man-made fibers.

Thus, luxury blankets of 100% Acrilan acrylic fiber by Chemstrand are the best-sellers in their field. Carpet of 100% Acrilan achieves a resiliency never before attained in the carpet industry. Jersey knits of 100% Acrilan have revived this practical fabric for the children's market, put fresh selling force into women's wash & wear blouses and separates. In the field of woven fabrics, Acrilan acrylic fiber has produced a broad variety of versatile, easy-care, wash & wear fabrics for men's, women's and children's wear.

But whatever the fabric, whatever the end use . . . your own mill can now count on Acrilan performance to

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES: 350 FIFTH AVE., NEW YORK 1, N. Y. • DISTRICT SALES OFFICES: 3½ Overwood Road, Akron, Ohio; 4 Pearl St., Dedham, Mass.;

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H ACRILAN®!

make the following contributions to efficient, economical operation:

- STAPLE-LENGTH UNIFORMITY superior to the most critical textile needs.
- FLY REDUCTION so significant it is raising yarn quality, reducing mill costs.
- UNIFORM DYEABILITY . . . dye merges have been maintained without change for over two years now.
- FAR BETTER FINISH CONTROL . . . directly responsible for improving carding and spinning uniformity.
- IMPROVED HIGH BULK PROCESSING . . . for greater assurance of fabric shrinkage control.

Applied to *your* mill, don't these advances offer similarly important benefits?

ACRILAN
ACRYLIC FIBER BY CHEMSTRAND
®

Starting Sept. 15th, Acrilan® Acrylic Fiber Promoted Over NBC-TV National Network on the New Sunday Night Comedy SALLY Starring Joan Caulfield

222 South Church St., Charlotte, N. C. • Canadian Agency: Fawcett & Co., 34 High Park Blvd., Toronto, Canada • PLANTS: ACRILAN® ACRYLIC FIBER—Decatur, Ala.: CHEMSTRAND® NYLON—Pensacola, Fla.

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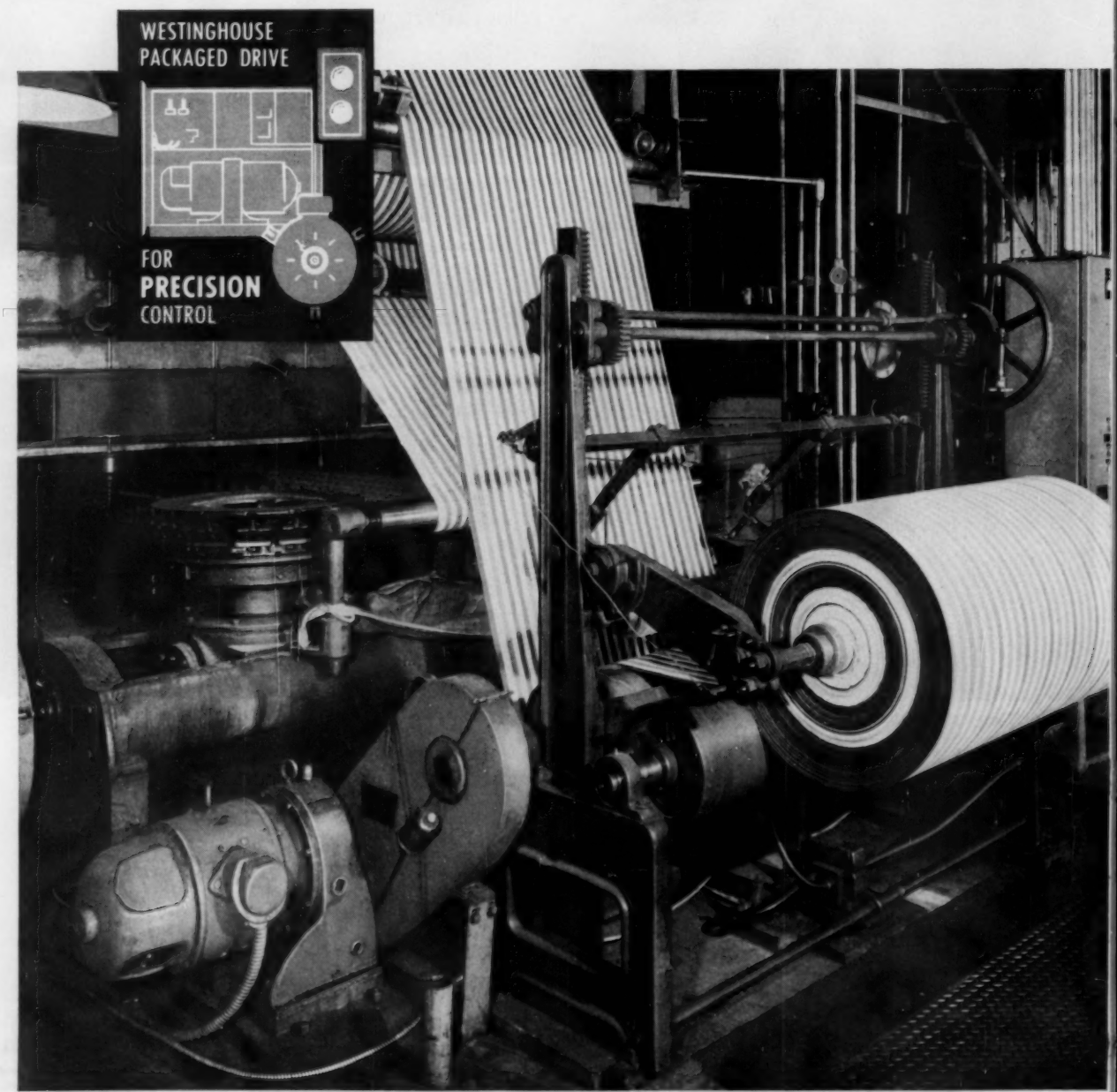
"Westinghouse AV-DRIVE jumped tenter frame production 78%"

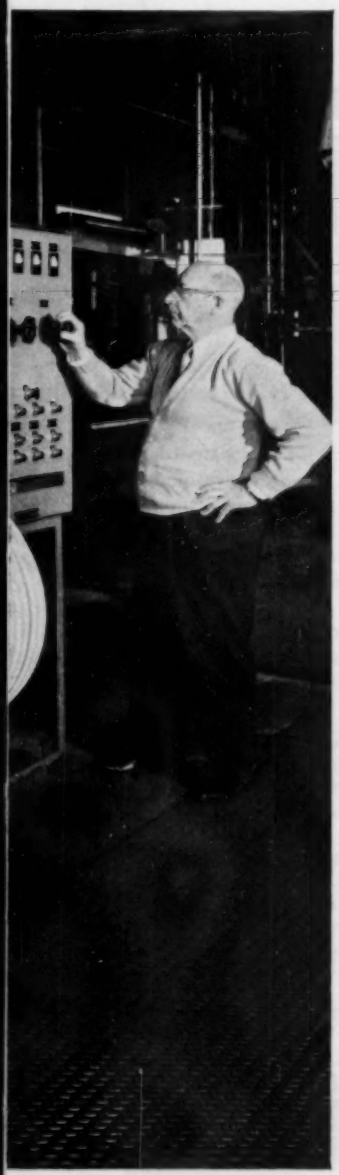
says *Plant Engineer, Hampton Mills, Inc., East Hampton, Mass.*

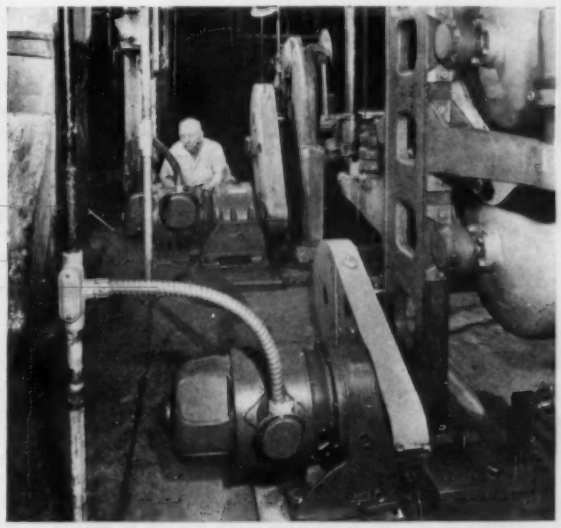


"The Butterworth Tenter Frame with Westinghouse AV Drive achieves a maximum potential of 160 yards of cloth per minute. Former machines were limited to 90 yards per minute," states Hampton's plant engineer. "When the plant is in full-scale production, this machine operates 22 hours a day. We can anticipate production of 145,200 yards of cloth daily for a weekly output of more than three-quarters of a million yards."

"The motors in this textile finisher range vary from 20 to 30 hp, with gearmotor output varying from 230 to 520 rpm. AV Drive provides the precision speed control to maintain the specific tensions. Pushbuttons on the control panel permit operation of any combination of the section drives at one time. We know from experience that our Westinghouse electrical equipment requires the least maintenance and gives us the best service," states the Hampton chief electrician.

To learn how the versatile Westinghouse AV Drive can make your production more profitable, call your local Westinghouse representative or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-22017





Here Hampton's chief electrician checks two of the five Westinghouse d-c drives used on the tenter frame. Rear motor controls the starch mangle as cloth is pulled from the bleach house. The 3-hp gearmotor in the foreground drives the eight steam-heated drying cylinders that predry the cloth with 35 pounds of steam.

AV Drive provides on-the-spot conversion of plant distribution system's a-c voltage to the required direct current for precision control of the drive motors.

YOU CAN BE SURE...IF IT'S

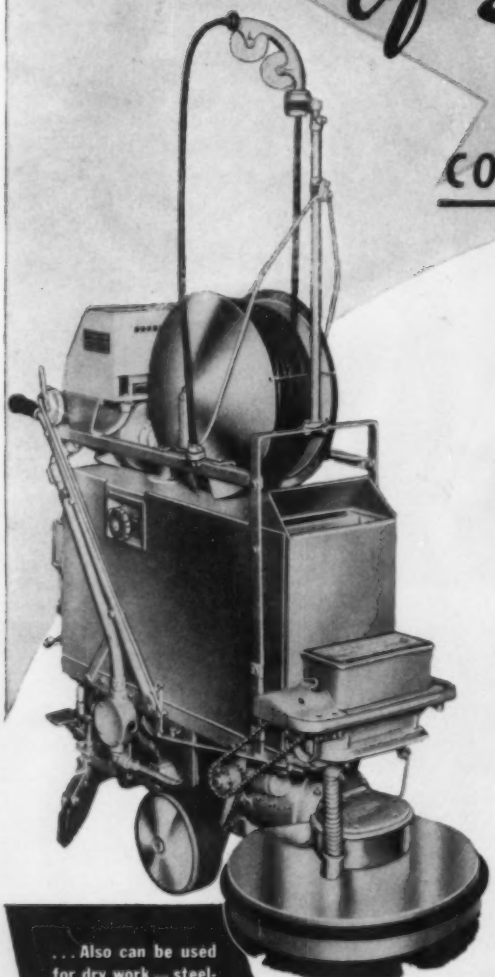
Westinghouse

SMALL-AREA BUILDINGS...

Save 2/3 of Every Hour of Scrubbing Time

WITH A

COMBINATION SCRUBBER-VAC!



...Also can be used for dry work — steel-wooling, et cetera

(Powder Dispenser is an accessory)

Today, even buildings with but 2,000 to 15,000 sq. ft. of floor space can reap the labor-saving, cost-reducing benefits of *combination-machine-scrubbing*. Here's a *Combination Scrubber-Vac, Finnell's 418P* at left, that's specially designed for such buildings. This *electric* unit, with its 18-inch brush spread, cleans floors in *approximately one-third the time* required with a conventional 18-inch machine and separate vac.

The *418P* applies the cleanser, scrubs, and picks up (damp-dries the floor)—*all in one operation!* Maintenance men like the convenience of working with this single unit... the thoroughness with which it cleans... and the features that make the machine simple to operate. It's *self-propelled*, and has a *positive* clutch. There are no switches to set for *fast* or *slow*—slight pressure of the hand on clutch lever adjusts speed to desired rate. The powerful vac performs quietly. Compactly built, the *418P* also serves advantageously in larger buildings for the care of floors in narrow aisles and congested areas, and is available on lease or purchase plan.

Finnell makes *Scrubber-Vac Machines* for small, vast, and intermediate operations, and in *gasoline* or *propane powered* as well as *electric* models. From this complete line, you can choose the size and model that's exactly right for *your* job (no need to *over-buy* or *under-buy*). It's also good to know that *a Finnell Floor Specialist and Engineer is nearby* to help train your maintenance operators in the proper use of the machine and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 1909 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

Ready now!

KLEINEWEFERS

Machines and Installations for

TEXTILE FINISHING

distributed and serviced by
BURLINGTON ENGINEERING SALES CO., INC.,
GRAHAM, N.C.
OUTSTANDING CALENDERS AND PADDERS • «LAY ON ROLL» CHAINLESS MERCERIZERS
CONTINUOUS BLEACHING RANGES WITH NEW Multiplex WASHER
Autoprint ROLLER PRINTING MACHINES

JOH. **KLEINEWEFERS** SÖHNE KREFELD·WEST-GERMANY

represented by:

BURLINGTON ENGINEERING SALES CO. INC.
GRAHAM N.C. CABLE ADRESS BURENG GRAHAM. N.C.

Multicolored limonite with red iron ore. Potosi, Bolivia

CIBA

Exciting is the only word to describe the uniquely beautiful CIBACRON* Colors. Newest products of CIBA's continuous research into new fields of color development, the CIBACRON Reactive dyes are "creative colors" that bring to the art of the designer, dyer and printer a palette of truly remarkable luminescent beauty that is matched only by Nature herself.

Eight fast, brilliant colors with more to come, the CIBACRON series make available to you new opportunities for achieving an entirely new range of superb color results for the dependable dyeing of cotton and rayon.

Cibacron*

*Reg. App. for

Cibacron

5432 1

Applications

Dyes of the Cibacron range are applied mainly by padding and printing methods. Three general steps are involved:

A. Padding and drying

B. Fixation

C. Removal of unfixed dye

Due to their excellent qualities, these reactive dyes have been applied with great success in padding on cotton and rayon by the following methods:

Pad-Steam method—The cloth is dried evenly after padding, run through a fixing pad operation, steamed and soaped.

Pad-Jig method—The goods are padded and dried, fixed on the jig in boiling salt bath and soaped.

Pad/Thermo-Fixation method—After padding and drying, the dye is fixed by dry heating at temperatures up to 320°F. followed by soaping.

Pad-Roller method—The goods are padded and fixation is carried out in the Pad-Roll chamber, followed by rinsing and soaping.

Single pad/steaming method—Goods are padded and dried, then fixation is done by steaming, followed by removal of unfixed color.

Cibacron dyes give excellent results in roller and screen printing on cotton, spun rayon, silk and chlorinated wool.

As modern as tomorrow—brilliant, fast and beautiful—the Cibacron dyes are easily applied in dyeing and printing for the finest results!

CIBA Company Inc.
627 Greenwich Street, New York 14, N. Y.

CIBA

"NYCOR" the New Revolutionary Stretch-less Belting For the Textile Industry.

This new G & K American made belting is what many superintendents and overseers have been looking for because it possesses lasting recoverable elasticity. It has the tight grasp of leather and the strength of plastic made stretchless in processing. "NYCOR" will give more production — less maintenance cost due to the elimination of take-ups.

"NYCOR" can be used on Slubbers, Intermediates, Traverse and Lickerin drives and it also has many other applications. The High Tensile Strength of "NYCOR" and its great coefficient of friction, allows the use of narrower belts that mean greater speed variations and more precise speed control.

Its oil resistant construction will give longer belt life in that it is uneffected by machine oils and humidity changes.

Remember that G & K "NYCOR" Belting has been developed to meet the exacting requirements of textile machinery. It is a high quality product of Graton & Knight, the world's largest industrial leather manufacturer known for its dependable products and service.

Send for more information on this amazing new revolutionary belt.

GRATON AND KNIGHT®

GRATON & KNIGHT *Company* INC.

WORCESTER 4, MASSACHUSETTS

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This set-up makes the industry's smoothest, most even warps

Notice how narrow this Kidde-Sipp warper is—anyone can reach anywhere for any operation. And the beam can be doffed, automatically, by a girl, without assistance of any kind.

it's the KIDDE-SIPP warper with accumulator and creel

The smoothest, most even warp beams available today are being turned out by Kidde-Sipp warpers . . . particularly when backed up by a Kidde-Sipp accumulator and a Kidde-Sipp Creel. Here's why:

Yarn is never scuffed on the warper because brakes on the measuring roll, compression roll, and beam are all synchronized electrically. Furthermore, yarn builds up evenly because the compression roller has 2 hydraulic cylinders, one at either end (instead of just one in the center). The balanced pressure that results gives you perfectly even build-up of yarn. And the hydraulic cylinders produce uniform cushion pressure so that the compression roller will not chatter or bounce.

The accumulator is electrically synchronized with the warper, so that, when the yarn must be backed off to recover a broken end, proper tension is maintained. And even the heaviest packages won't sag out of alignment on the versatile Kidde-Sipp Creel. New, stronger package holders and adapters are the reason. They are made of aluminum, which also puts a stop to rust rubbing off on the yarn.

There are a lot more reasons why you get a better beam with Kidde-Sipp Warpers, Creels and accumulators. Find out more about them by writing to:

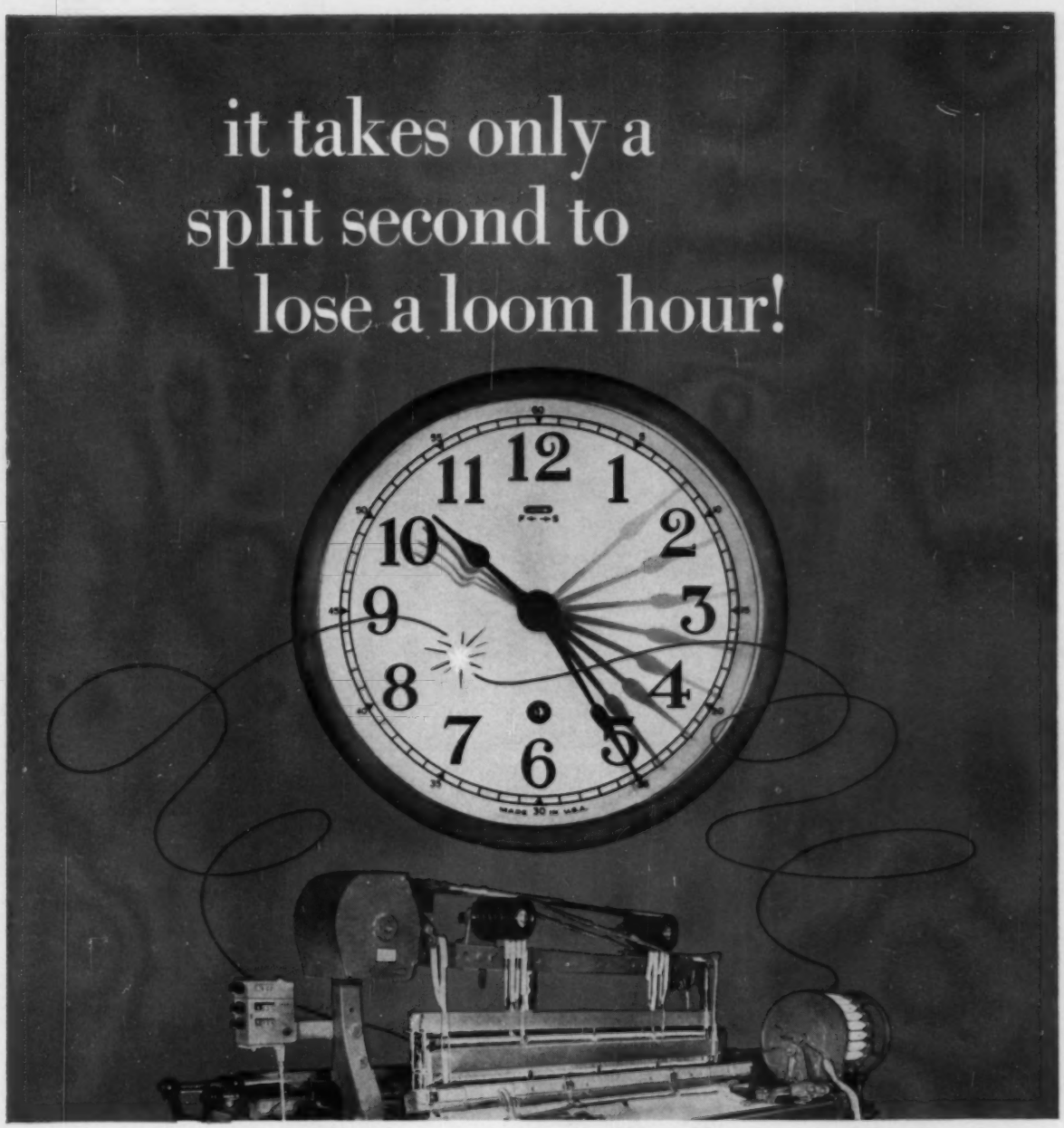
TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

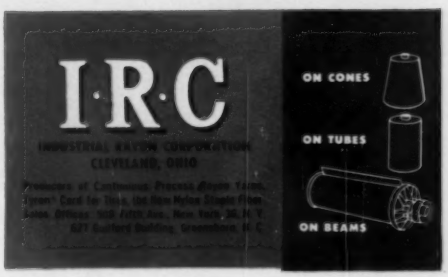
it takes only a split second to lose a loom hour!



Ever count how much money filling breaks cost *your* plant each year?

But there's an easy way out! Because with IRC Continuous Process Rayon it's a snap to beat breakdowns. Unequalled uniformity is the reason. Human hands never touch this yarn through the entire processing, eliminating knots, slubs, broken filaments, or slack twist—all major causes of filling breaks. And IRC Continuous Process Rayon always dyes as perfectly as any fiber ever made.

So beat the clock, do as other weavers of critical fabrics do—specify IRC Continuous Process Rayon. It costs no more than ordinary rayon.



Use IRC Continuous Process Rayon...uniform mile after mile . . . perfect inch by inch . . . and it costs no more!

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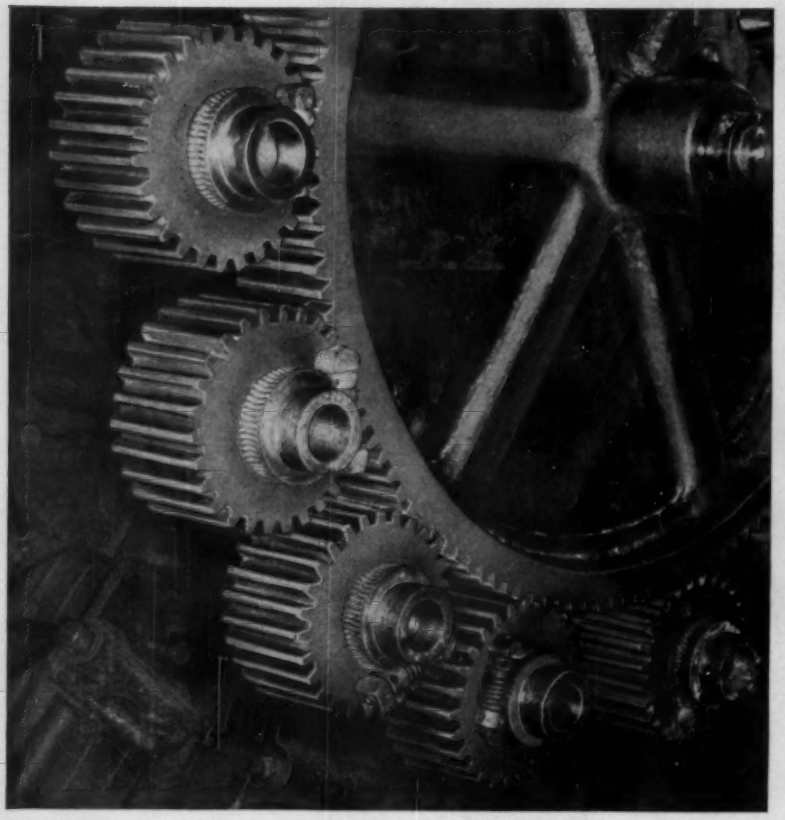

REDUCE WEAR on large metal gears and reduce noise in textile printing machines with the use of C-D-F Celoron plastic gears. Prior to this use of Celoron, metal gears had to be replaced after one to two months' operations. Since installing nine C-D-F Celoron gears over a year ago, there has been no wear on the main gear, no replacement of the C-D-F Celoron gears.

ELIMINATE CORROSION, resist wear with C-D-F Celoron pot-eyes for bleachery applications. This low-cost molded product is extremely smooth and strong, has excellent resistance to high heat, moisture, abrasion.

INCREASE MACHINE EFFICIENCY with special C-D-F loom parts. This C-D-F parallel plug has high impact strength, is impervious to oil and water. It does not fracture, chip, delaminate. Two years' life is common.

SAVE MATERIALS with superior C-D-F Roving Cans. For running synthetics, C-D-F makes a rolled fibre rim that eliminates static charge. No chance of snagging or injuring materials. New 15" diameter Diamond Fibre cans are now available!

LOWER mill operating COSTS by wider use of C-D-F plastics

Reduce wear and noise, eliminate corrosion, increase machine efficiency, save materials. That's what these four examples of C-D-F plastics can do for your mill. C-D-F is a leading manufacturer of vulcanized fibre, the long-life material that goes into Diamond Fibre Roving Cans which are famous for quality and their seamless uniformity. C-D-F has years of experience in selling the textile industry, has established its southern headquarters in Spartanburg, S. C. Reasonable prices, superior quality, fast service are part of every order placed with the friendly C-D-F textile sales engineer. If lowering mill operating costs is your responsibility, C-D-F . . . a big reliable source of supply . . . helps you with a complete line of textile industry plastics.

C-D-F MAKES

BARRELS
BEARINGS—cloth roll, jig
BOARDS—examining
BOBBINS
BLADES—separator
BOXES—battery filling
bobbin
conditioning
doff
mill
quill
spooler
tote
BUSHINGS—binder
CAMS
CANS—roving waste
COUPLINGS
COVERS
spinning bucket
GEARS—auxiliary
card
coiler head
fitting
motor pinion
quill
picker
spinner
spooler
GUIDES—knife
PICKER—stick parts
PINS—binder
PIRNS
PLATES—lay
PLUGS—parallel
POT—eyes
PULLEYS
RECEPTACLES
ROLLS—lap
ROLLERS
SEPARATORS
SHEETS—bin lining
SHUTTLE PARTS
TABS—binder
TRACK—tenter frame
TRUCKS—cloth
conditioning
doff
filling
quill
spinning
spooler
twisting
waste
winding
TUBES—core sizing
TUBING—spiral
WASHERS

CALL C-D-F SPARTANBURG, Spartanburg 3-6397 for fast service, expert technical help.

CONTINENTAL-DIAMOND FIBRE
A SUBSIDIARY OF THE BUDD COMPANY
NEWARK 41, DELAWARE

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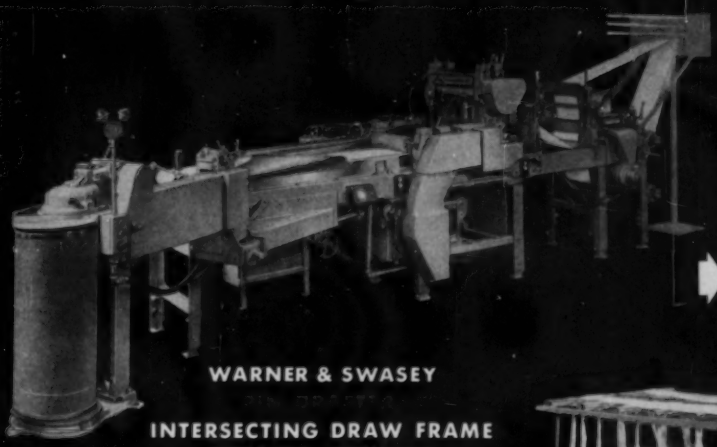


WARNER & SWASEY

WITH HEAT-STRETCH UNIT

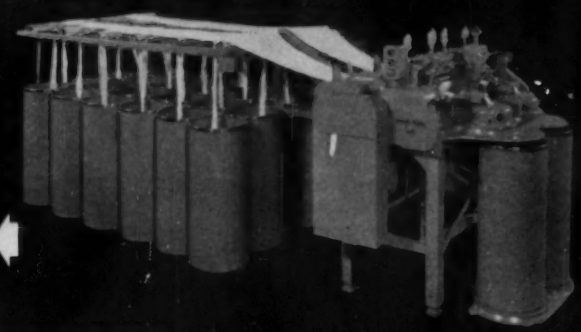
- Converts *all* types of synthetic tow to crimped sliver.
- Cuts and accurately blends synthetics or natural fibers.
- Eliminates blending, carding and gilling operations.
- Heat-stretch unit gives *controlled* shrinkage of high bulk fibers—unit can be added to all existing converters.
- High production—100 to 130 lbs. per hour.

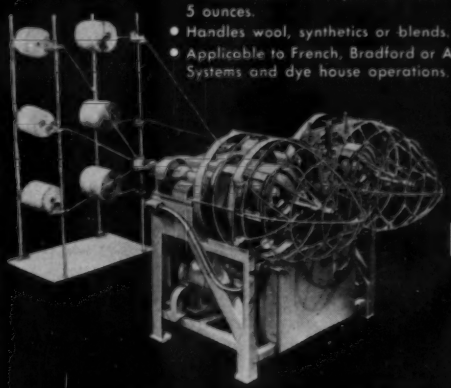
WARNER & SWASEY

INTERSECTING DRAW FRAME

SINGLE HEAD—DOUBLE HEAD

- Single Head—single or dual can delivery.
- Double Head—dual or quad can delivery, or balling head.
- Better balanced, 50% greater production.
- Speed increased to 1,500 drops per minute.
- Produces more evenly blended sliver up to 5 ounces.
- Handles wool, synthetics or blends.
- Applicable to French, Bradford or American Systems and dye house operations.



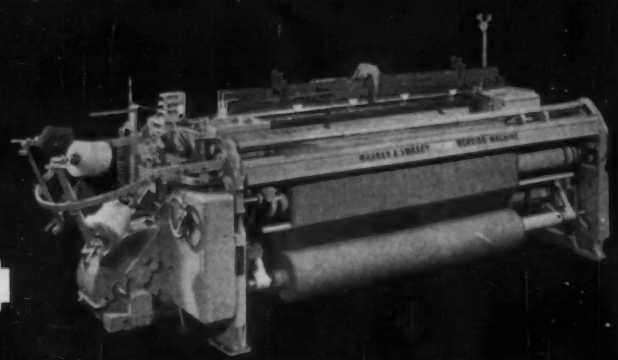


WARNER & SWASEY

- More than doubles existing twisting speeds—twists up to 11,000 T.P.M. —winds up to 150 yd./min.
- 2 for 1 twist—.85 to 7.76 T.P.I.
- Large precision sales packages up to 30 lbs., either cone or tube.
- Produces wide variety of finished cord sizes—2,000 to 50,000 denier.
- Requires a minimum of floor space.

WARNER & SWASEY—SULZER®

- Operates at 240 P.P.M.—almost twice the speed of other weaving equipment.
- Gives improved work quality.
- Available with Filling Mix Unit for blends and shark-skin weaves.
- Drastically reduces burling and mending costs.
- Adaptable for weaving worsteds, woolens, synthetics and specialties such as paper.



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® Reg. U. S. Pat. Off.

Product quality, output and profits—all rise with Warner & Swaseys on the job

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS ... WITH A WARNER & SWASEY

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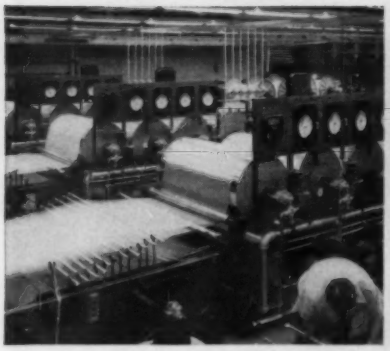
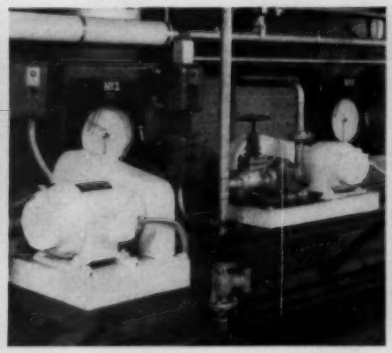
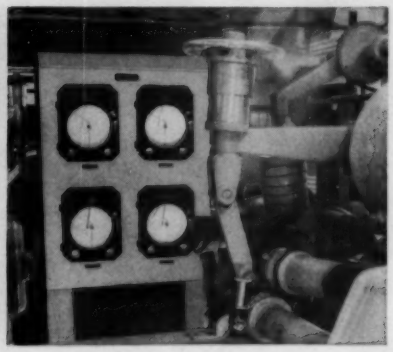


High Speed Slashing

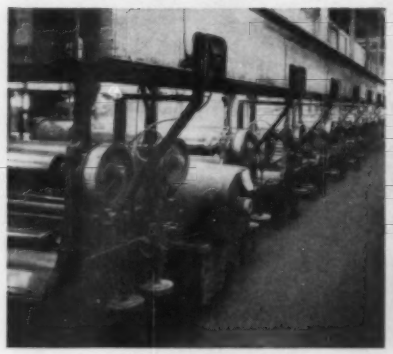


Size Cooking and Storage



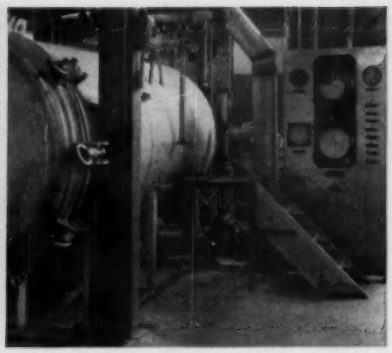
Mercerizing

Taylor CONTROLS LIKE THESE...



Dye Jig Operation

Package Dyeing



High Pressure Cloth Dyeing

CUT COSTS IN THESE TEXTILE APPLICATIONS!

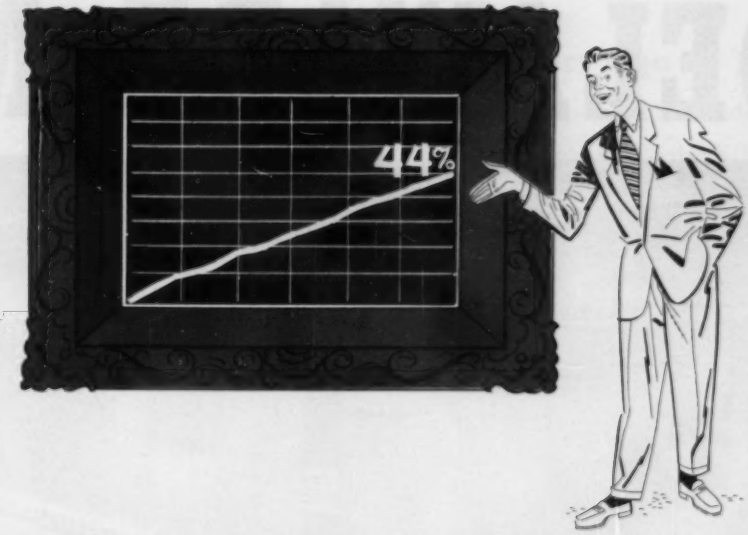
Size Cooking	Top Dyeing
Size Storage Kettle	Jig Dyeing
Slashing	Wool Scouring
Kier Bleaching	Continuous Dyeing
Continuous Bleaching	Drying
Tentering	Carbonizing
Piece Dyeing	Washing
Package Dyeing	Continuous Crabbing
Beam Dyeing	Padding
Finishing	Decating
Mercerizing	Power Plant
Skein Dyeing	Air Conditioning

Taylor started putting quality controls and systems to work in the textile industry in 1919—the first instrument manufacturer in the field. The list above shows some of the Taylor Control Systems available today—ask your Taylor Field Engineer about putting them to work in *your* plant. Taylor Instrument Companies, Rochester 1, N. Y., and Toronto, Canada.

Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.

Taylor Instruments
MEAN
ACCURACY FIRST
VISION · INGENUITY · DEPENDABILITY

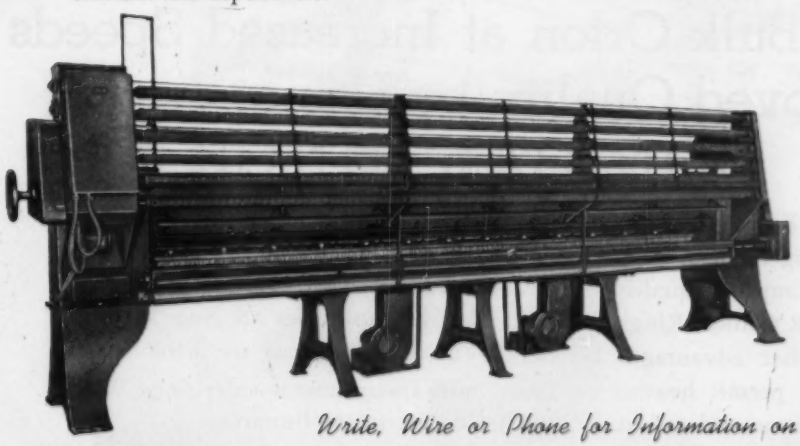
a very pretty picture



...and COBBLE helped paint it!

Yes, the Tufting Industry picture looks mighty good! In exactly six short years, from 1951 to 1957, tufted carpet sales have soared from zero to 44% of total carpet sales amounting to 113,900,000 square yards. This is a phenomenal rise and Cobble Brothers is justifiably proud of the part it has had in making it possible. Cobble Tufting Machines are in use throughout the industry and have established an enviable reputation for being efficient and dependable.

Cobble Brothers, as the largest and oldest manufacturer of Yardage Tufting Machines, is looking toward the future and working constantly on new ideas and improvements in an effort to anticipate the needs of the Tufting Industry. It will continue to be the policy of Cobble Brothers to provide the very best machinery possible and to introduce new machinery which will allow the Tufting Industry to continue to expand.



Shown at left is the 216 inch Carpet Tufting Machine with 6-Roll Pattern Attachment.

Write, Wire or Phone for Information on the Cobble Bros. Complete Line of Tufting Machinery.

COBBLE BROS. MACHINERY CO.

RIVERSIDE DRIVE • PHONE OX 8-3481 • CHATTANOOGA, TENN., U.S.A.
GATE STREET WORKS • BLACKBURN, LANCASHIRE, ENGLAND

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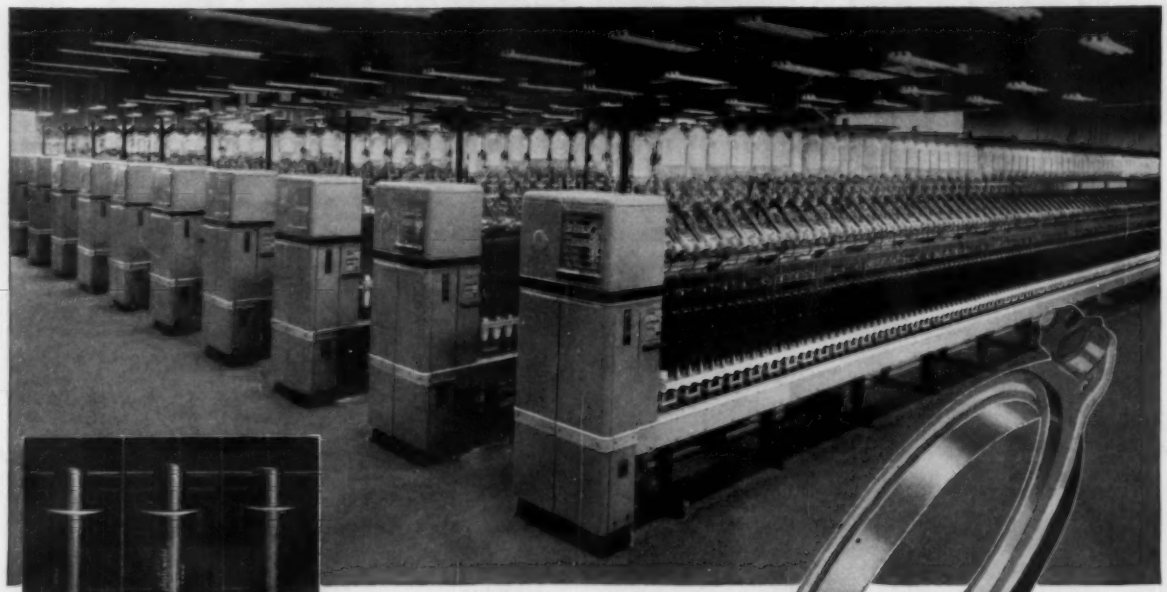
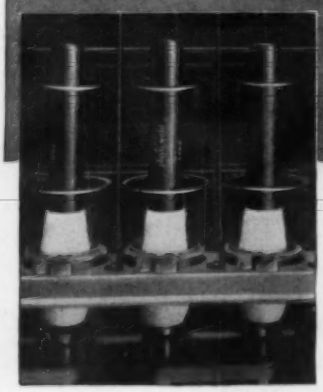
DELAWARE MILLS





Says Mr. William C. Appleton, President of Delaware Mills, Inc., "We are well satisfied with our HERR Conical Rings both on spinning and twisting."

Herr Conical Rings are used on these new Saco-Lowell GWALTNEY Spinning Frames. They are also used on Delaware Mills — Universal Winding Company 10B Twisters.

The HERR Conical Ring provides ideal conditions for the spinning or twisting of any yarn.

Produce High Bulk Orlon at Increased Speeds and with Improved Quality by Using . . . .

HERR CONICAL RINGS

Equip with HERR Conical Rings and begin to enjoy these profit making features. You can speed up production, improve quality and lower costs with HERR Conical Rings. You'll gain too, many other advantages. They stop yarn breakage, permit heavier doffs, produce smoother yarns and reduce fly. You'll enjoy cleaner yarn because oil is not thrown off. Frames and room floors stay cleaner. Travelers last longer because oil is carried in capillaries to ring surfaces. Maximum spindle speeds are achieved.

Learn more about these wonder rings. Write today for descriptive literature.

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON AND BLENDED YARNS OF ALL TYPES

HERR MANUFACTURING CO., INC.

309 Franklin St., Buffalo, N. Y.

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FRANZ MÜLLER

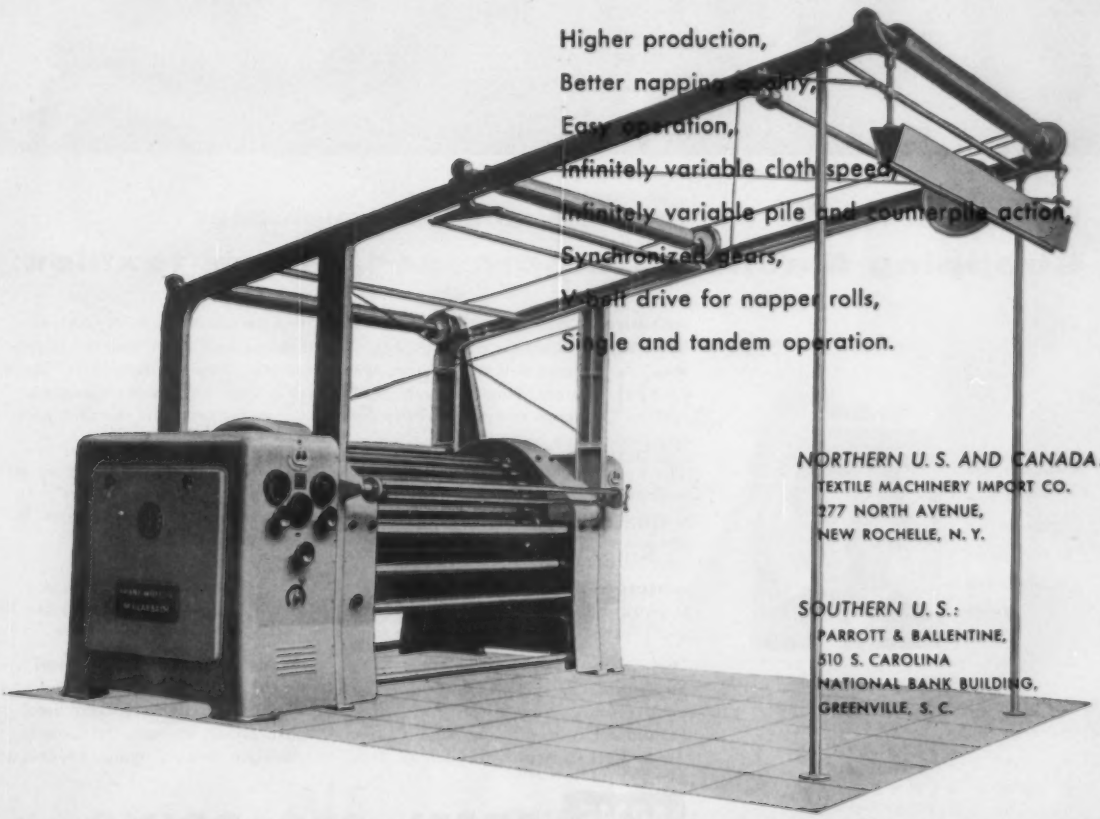
More than 100 years ago

Franz Müller founded the company known today as Franz Müller, Maschinenfabrik, M.Gladbach. He eventually specialized in building textile machines and was the first one to construct a napper of rigid, horizontal design. Constant experiments proved, however, that adopting the planetary principle for the napper rolls produced much better results, and Franz Müller built the first fourteen-roller planetary napper - the proto-type of all similar nappers to follow.

In those days the first planetary napper startled the textile industry. Today the Franz Müller TRI-Napper has conquered the world's largest textile markets.

The FRANZ MÜLLER TRI-Napper offers you -

Higher production,
Better napping quality,
Easy operation,
Infinitely variable cloth speed,
Infinitely variable pile and counterpile action,
Synchronized gears,
V-belt drive for napper rolls,
Single and tandem operation.



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Know your AIM*... Renfrew Bleachery Division does...

Strapping Machine compresses, straps textiles

RENFREW BLEACHERY DIVISION OF ABNEY MILLS, Travelers Rest, South Carolina, with the help of their Acme Idea Man, found a better way to compress and strap boxes of cotton cloth. Now an Acme Steel Model F3 Strapping Machine serves as the heart of a highly efficient packaging system. One man straps the entire production in far less time than formerly required. (Idea No. S6-7)

Acme Idea Man J. B. Farr contributed to this modern packaging system.

The F3 successively compresses the pack and tensions, cuts and seals one strap —or two or three straps simultaneously—while the pack is still under compression. Air powered and electrically controlled with push-buttons, it applies each strap with uniform pre-determined tension. After each application, the platen rises and the strapped pack moves down the conveyor. While the following pack moves into the machine, straps are feeding into position for the next application. Packs of varying sizes can be compressed and strapped in any sequence without machine adjustment.

***Know your Acme Idea Man.** Listed in the Yellow Pages under "Steel Strapping", he is well equipped to cooperate in solving your packaging and production problems. Call him today. Or write, Dept. TAS-97, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada, Ltd., 743 Warden Ave., Toronto 13, Ontario.

ACME STEEL **STEEL STRAPPING**

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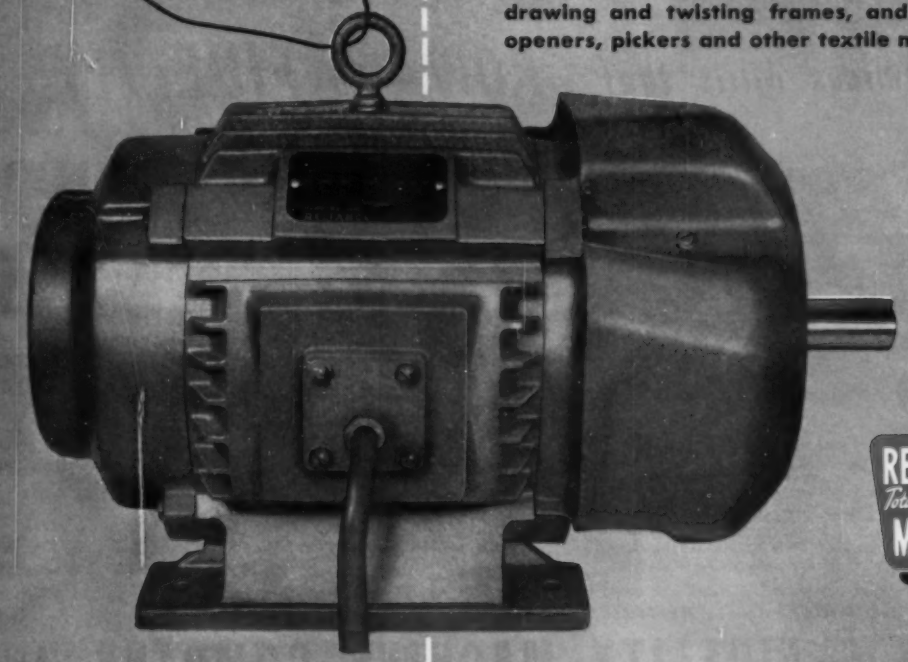
MILL TESTED AND PROVED

THE FIRST LINT-PROOF TEXTILE MOTOR

- ELIMINATES MOTOR CLEANING COSTS
- SAVES SPACE—PERMITS UNDER FRAME MOUNTING
- TOTALLY-ENCLOSED—PREVENTS WATER DAMAGE
- REDUCES FIRE HAZARD
- FLEXIBLE DESIGN—ADAPTABLE TO ALL MACHINES

Now available—1-20 hp. general-purpose, totally-enclosed, air-cooled, textile motor for application on spinning, roving (low torque), drawing and twisting frames, and on cards, openers, pickers and other textile machines. B-1804

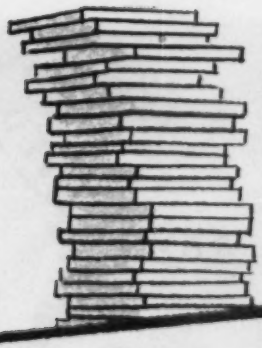


RELIANCE Totally-Protected MOTORS

RELIANCE ELECTRIC AND ENGINEERING CO.

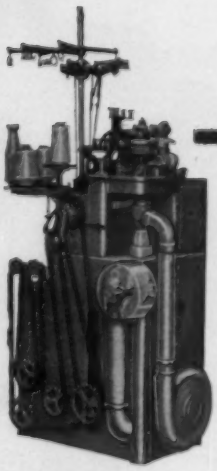
Dept. 219A, Cleveland 10, Ohio • Offices in Principal Cities

Canadian Division: Welland, Ontario



Hosiery Buyers that KNOW — Go SEAMLESS

Seamless Mills that GROW — Go FIDELITY*



* The *only* electronically controlled circular knitting machine that offers

- Single or double feed operation
- 400 or 474 needles
- Automatic Tension Device
- Individual Motor Drive
- PLAIN—MESH—or S-T-R-E-T-C-H at the push of a button.

Keep growing in this booming seamless market . . . investigate the advantages of the amazing Fidelity "400" and "474".

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

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EXPORT DEPT.: 11 BROADWAY, NEW YORK 4, N.Y.

SOUTHERN REPRESENTATIVE: C. S. BRANNOCK, P.O. BOX 763, MT. AIRY, NORTH CAROLINA

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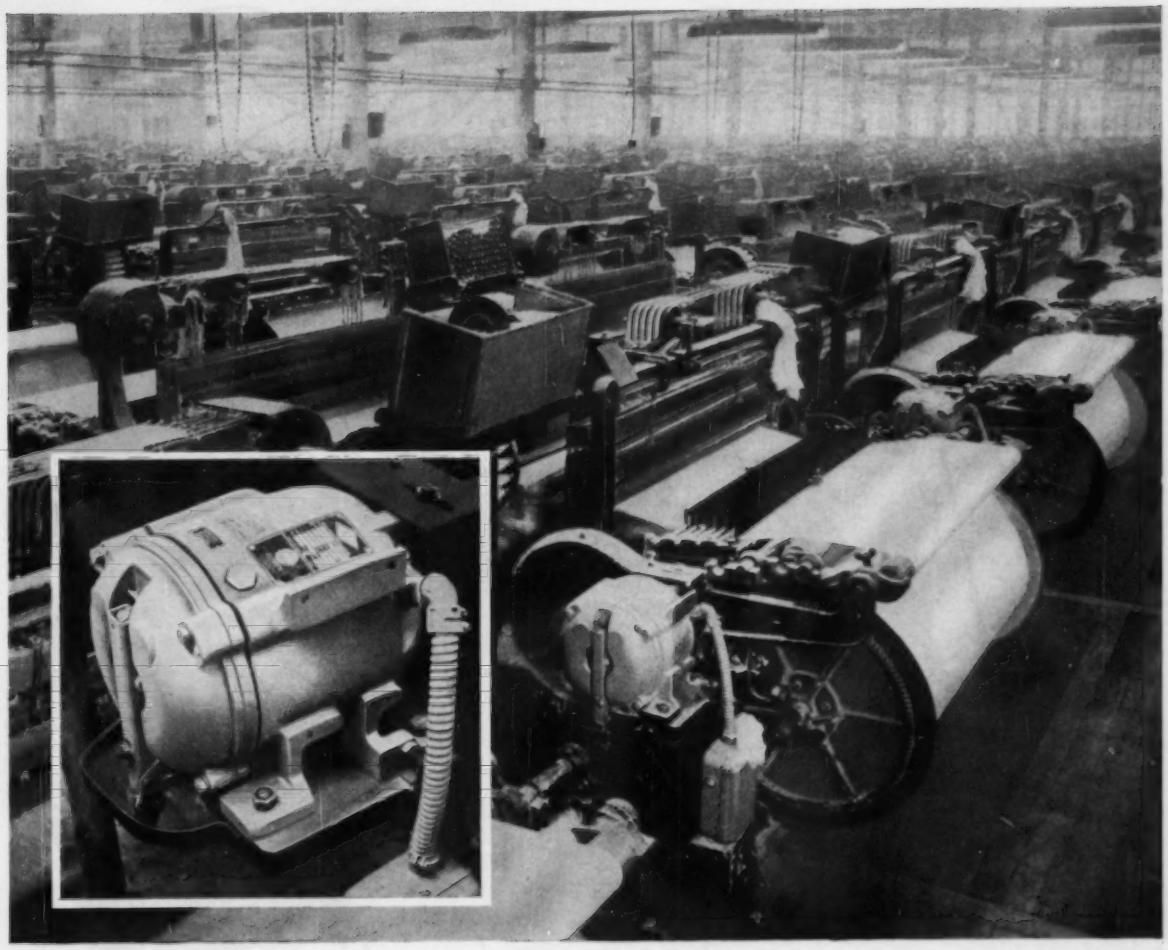

AT CONE MILLS

DIEHL transmitters improve product quality

Three hundred Draper looms powered by the latest type DIEHL Power Transmitters were recently installed as part of an important new modernization program at Cone Mills Corporation's Minneola Plant, Gibsonville, N. C., with most satisfactory results in the improvement of loom performance and product quality.

DIEHL Power Transmitters were developed especially for Draper looms, and feature a fast, positive clutch-brake mechanism combined with an inverted type motor which provides high inertia without need for a separate flywheel. This design produces a constant steady pull for more efficient weaving and better quality greige goods, in the opinion of a plant official. "Increased efficiency of looms will be joined by lower operating costs because of the combination of Draper X2 looms and DIEHL Transmitters," he said. The looms now run at 186 picks per minute.

Cone Mills plant officials are favorably impressed with the positive action of the clutch-brake mechanism, the pinion driving shaft construction which eliminates the thrust bearing on the loom, the speed and ease of removal and replacement of the transmitter for inspection and servicing, the totally enclosed housing design which protects against weave room lint and fly, and the negligible maintenance and down-time costs.

DIEHL Power Transmitters can increase production and efficiency—at lower operating costs and less down-time—in your mill. Specify them for your looms.

DIEHL MANUFACTURING COMPANY
Electrical Division of
THE SINGER MANUFACTURING COMPANY
Finderne Plant, SOMERVILLE, N. J.

Diehl

☐ Please send me Consolidated Motor Catalog and Price List No. TW-9 3540

☐ Please send me Textile Motor Bulletin No. TW-9 3526

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Holding your head in your hands...

because of Belt Drive headaches?

Now you can increase belt life and reduce belt slippage with SKF Belt Guide Rollers. Easily installed on existing belt forks on any textile equipment, particularly cards and roving frames, SKF Belt Guide Rollers assure better speed and power feed, safer operation at higher speeds and fewer belt service problems.

A pioneer in anti-friction bearing units for the Textile Industry, SKF today enjoys a reputation of proven performance. A testimonial to the high-quality standards of SKF equipment is the fact that there are more SKF-equipped anti-friction units operating in the textile industry throughout the world than any other make. 7786

SKF®

EVERY TYPE—EVERY USE

Spherical, Cylindrical, Ball, and Tyson® *Tapered Roller Bearings*

*Reg. U.S. Pat. Off. Tyson Bearing Company

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

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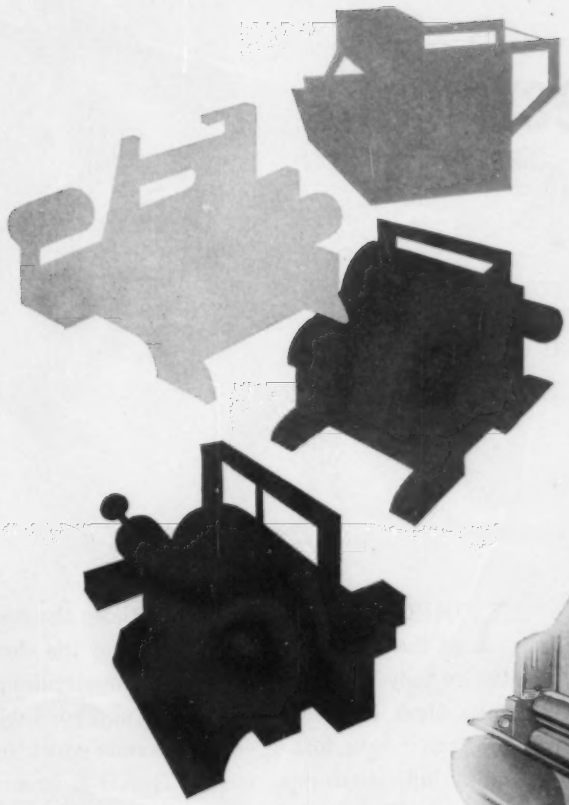
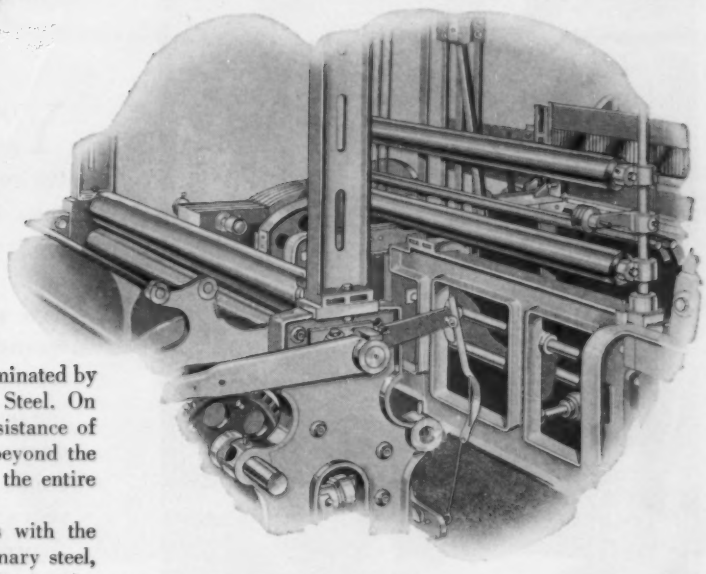
when you count the cost of rust removal

EQUIPMENT OF CRUCIBLE STAINLESS COSTS LESS





The cost of removing rust can frequently be eliminated by using equipment made of Crucible Stainless Steel. On whip rolls, for example, the high corrosion resistance of stainless prevents rust from forming on ends beyond the warp's contact area. When the loom is down, the entire stainless steel roll stays rust-free.

Compare effective rust prevention like this with the cost of continual cleaning to keep rust off ordinary steel, and the long term economy of Crucible Stainless equipment is apparent.

Corrosion resistance is just one of many properties which make Crucible Stainless, in the long run, the most economical material for a great variety of textile equipment. It will pay you to find out more about how the use of this cost-cutting material can make equipment turn out better quality yarn at lower cost. Do either of 2 things: (1) Write for Crucible's 32-page booklet, "Making the Most of Stainless Steels in the Textile Industry", or (2) get in touch with your local Crucible representative. *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

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General Electric says:

"On the average, only 1 out of 100 G-E Lamps will burn out during the first year of service in a single shift operation."

Harold Kilburg, electrical contractor, says:

"Out of 5,150 G-E Lamps we installed a year ago, we've had to replace only 20. That's 1 out of 250!"

MR. KILBURG (center), president of Kil-Bar Electric Co., Chicago, inspects one of the G-E Lamps that has given such excellent service. Leo Carmody (left), wholesale agent salesman, and Larry King, G-E Lamp Salesman, worked together on this installation.

YOUR *cost of light* is about 10 times the cost of the lamps. It's also the cost of the electricity they use . . . and the cost of maintaining the system. If you buy lamps with unpredictable life, you'll have lots of early burnouts which require individual replacement. But G-E Lamps have a uniform life with few early burnouts. This means you can schedule an economical group relamping program (replace all your lamps at the same time) and realize big savings in maintenance that far outweigh the little light left in the lamps. For full information on this way to improve your lighting and save money, too, write: General Electric Co., Large Lamp Dept. TW-97, Nela Park, Cleveland 12, Ohio.

Progress Is Our Most Important Product

GENERAL ELECTRIC

G-E LAMPS GIVE YOU MORE FOR ALL YOUR LIGHTING COSTS

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For breath-taking color performance...

AAP DYEHOUSE AUXILIARIES

Four dependable products to simplify your dyeing and printing operations and give you consistent color quality and fastness. LEVELENE*—a retardant, dispersant and vat color stripping agent. FASTOGENE*—to improve water fastness of dyed cotton and rayon in a simple after-treatment. STABILON*—for better napthol dyeing . . . brightens shades, minimizes crocking. DEPUMA*—superior antifoam for printing, dyeing and soaping. For working samples, write or call your A.A.P. representative at our nearest branch.

AAP

AMERICAN ANILINE PRODUCTS

A UNIT OF KOPPERS COMPANY, INC.

KOPPERS BUILDING, PITTSBURGH 19, PA. **PLANT:** LOCK HAVEN, PA.
BRANCHES: Providence, R. I. • Philadelphia, Pa. • Paterson, N. J. • Chicago, Ill. • Charlotte, N. C. • Chattanooga, Tenn. • Columbus, Ga. • Los Angeles, Cal.
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IVES
NEWEST FACTORY

an additional plant to produce precision knitting needles and parts automatically

To better serve the textile industry, we have substantially expanded our manufacturing facilities in a nearby suburb.

The superiority of Ives expertly designed extra durable vanadium steel parts is a result of over 84 years in-the-mill on-the-job performance!

Ives accurately produced parts are logical first-choice equipment when knitting machine settings are checked electronically (TW Oct. 1956).

Let Ives help you produce finer fabric with knitting parts made for today's rigid machine and yarn requirements.

Contact Ives if you operate these machines:

SUPREME • FIDELITY • TOMPKINS • KIDDE • BRINTON • WILDMAN-JACQUARD
CRANE • BANNER • REINER • SCOTT & WILLIAMS • BENTLEY

Prompt deliveries assured. Write, wire or phone CHarter 9-0396-7

THE LOYAL T. IVES COMPANY, INC.
NEW BRUNSWICK, N.J.

Top Quality Cloth... Produced Faster!

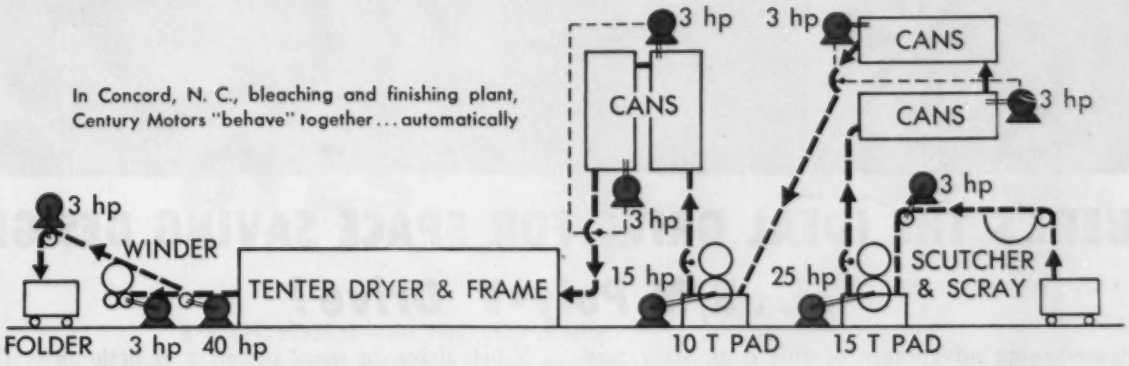
Precise speed correspondence of

Century

SELECTIVE SPEED DRIVE

automatically controls processing of this Tenter Range

In Concord, N. C., bleaching and finishing plant, Century Motors "behave" together... automatically



From scutcher and scray, through padders, dry cans, tenter dryer and frame, and winder or folder . . . cloth travel through this Tenter Range is precisely controlled by a Century Selective Speed Drive.

A 40 H.P. motor automatically "leads" the other 9 motors of the Drive—and all 10 motors are kept in an extremely accurate, constantly maintained speed correspondence. In its first 14 hours of operation, this range processed 54 miles of cloth . . . and is running like clockwork.

Century has more than 50 years' experience in engineering DC motors. Whatever your problems in textile processing drives, our application engineers will be glad to talk with you. Call or write your nearby Century District Sales Office or Authorized Distributor.

Performance-Rated© MOTORS
1/20 to 400 H.P.

CENTURY ELECTRIC COMPANY

77B

1806 Pine Street • St. Louis 3, Missouri • *Offices and Stock Points in Principal Cities*

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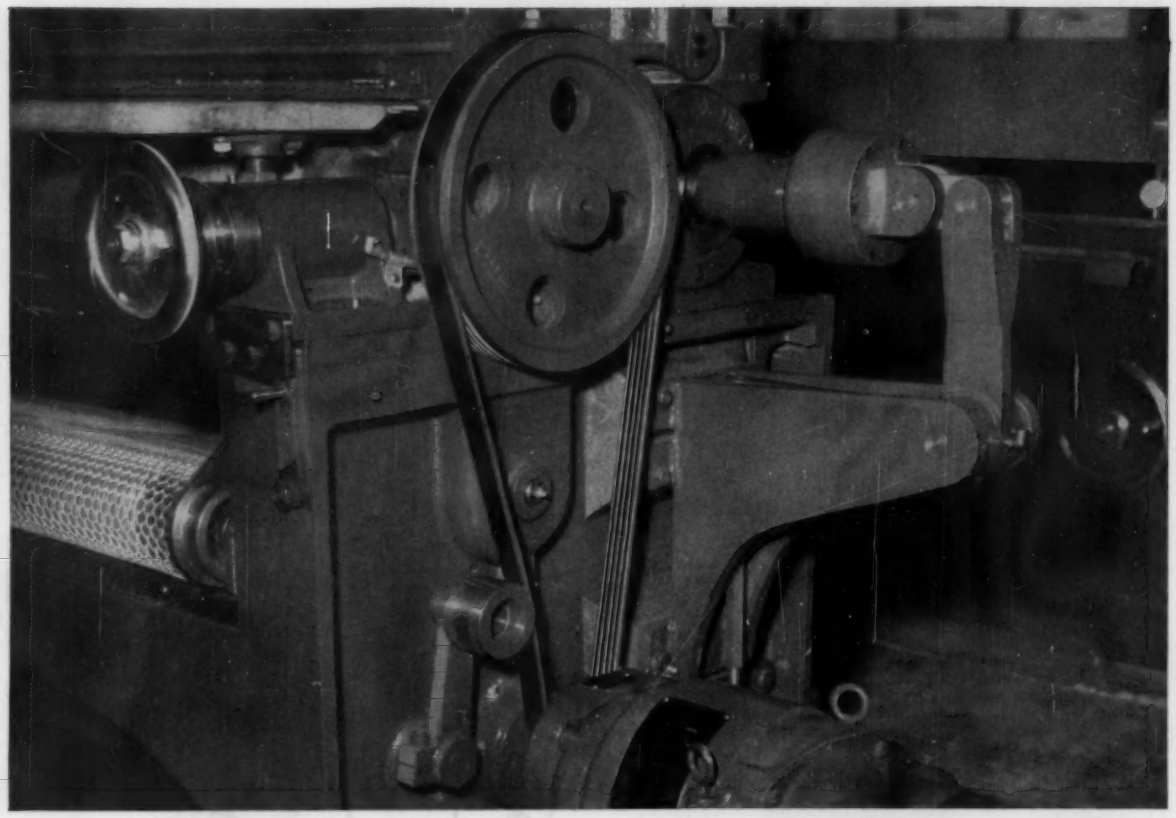


HERE'S THE IDEAL DRIVE FOR SPACE SAVING DESIGN

. . . R/M *Poly-V®* Drive!

Space-saving advantages of this completely new concept in heavy duty power transmission can mean improved drive design for a wide variety of applications.

On this buffer drive, for example, installation of patented Poly-V Drive reduced sheave width 50%! Bonus advantages? *Faster* machine operating speeds, 20% lower drive costs . . . and elimination of costly "chatter" marks on textiles, leather and other materials caused by V-belt slap during buffing operations.

R/M Poly-V Drive employs a *single, endless* parallel V-ribbed belt running on sheaves designed to *mate precisely* with the belt ribs. Flat belt strength and simplicity *plus* the positive V-groove grip of V-belts gives Poly-V Drive *twice* the tractive surface of multiple V-belts of equal width . . . up to 50% more *power delivery* in the same space as a V-belt drive, or *equal* power in as little as ⅔ the space! There's less shaft overhang, too . . . less drive weight to meet heavy duty requirements.

Poly-V's single unit design also eliminates belt matching problems, greatly increases the life expectancy of both belts *and* sheaves, maintains more constant speed ratios under *all loads*. Just *two* cross sections of Poly-V Belt meet *every* heavy duty power transmission requirement—R/M Poly-V Drive cuts costly belt and sheave inventories to a new low!

Let the R/M engineers who developed this amazing drive help you determine the installation that will mean "More Use per Dollar" for the equipment you design or the equipment you use. Contact the R/M representative nearest to you . . . or write for Poly-V* Drive Bulletin #6638.

**Poly-V is a registered Raybestos-Manhattan trademark.*

RM735

BELTS • HOSE • ROLL COVERINGS • TANK LININGS • INDUSTRIAL RUBBER SPECIALTIES

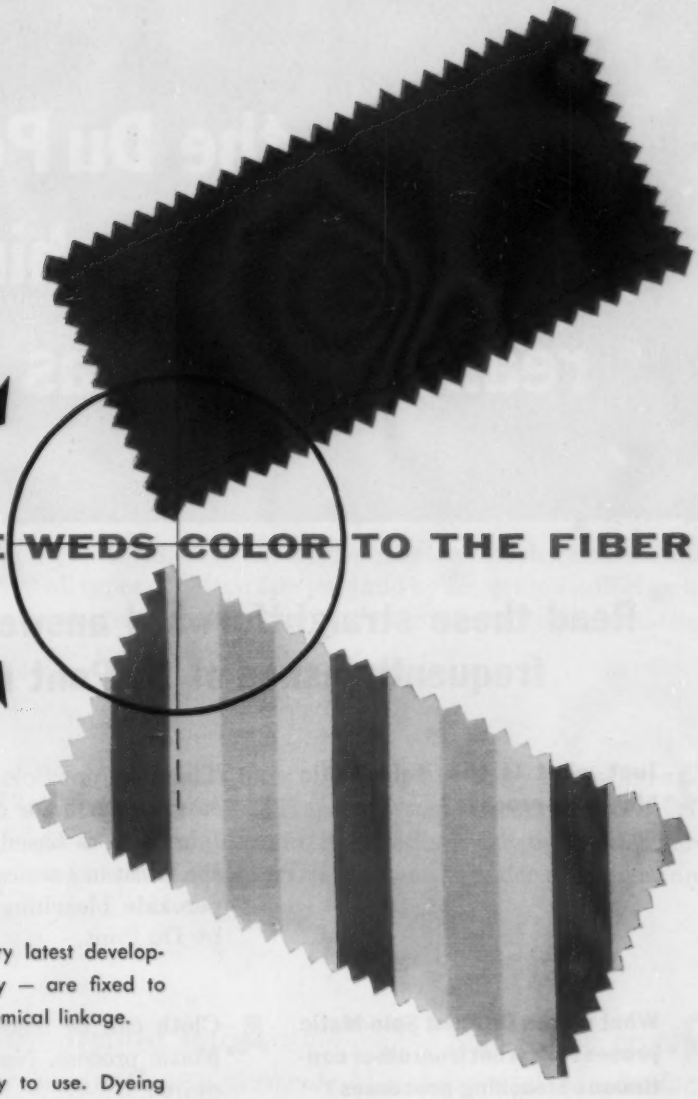
R/M

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products: Abrasive and Diamond Wheels • Brake Blocks and Linings • Clutch Facings • Asbestos Textiles • Mechanical Packings • Engineered Plastics • Sintered Metal Products • Industrial Adhesives • Laundry Pads and Covers • Bowling Balls

setting
new sights
in color
achievement



CHEMICAL LINKAGE WEDS COLOR TO THE FIBER

PROCION DYES

PROCIONS – the very latest development in dyestuffs technology – are fixed to cellulosic fibers by direct chemical linkage.

PROCIONS are easy to use. Dyeing proceeds with or without the use of steam. Development involves a simple treatment with alkali. Procions may be applied by a variety of methods, and are particularly suitable for high speed continuous applications.

PROCIONS possess outstanding brilliancy, high tinctorial power, good fastness to light and to wet treatments.

DYE OR PRINT **PROCIONS**

AHCO DYES

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OFFICES & TECHNICAL SERVICE LABORATORIES
PROVIDENCE, ATLANTA, CHARLOTTE, TETERBORO
ASSOCIATED WITH IMPERIAL CHEMICAL
INDUSTRIES, LIMITED • LONDON, ENGLAND

PROCIONS . . . AN ENTIRELY NEW TYPE OF DYESTUFF

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Is the Du Pont Solo-Matic Bleaching Process really as good as they say?

Read these straightforward answers to the questions frequently asked of Du Pont representatives

Q. Just what is the Solo-Matic bleaching process?

A. The Du Pont Solo-Matic process is an advanced single-stage method for continuous bleaching of woven cotton fabrics. It is based on a new chemical technique and is the latest in a series of major improvements in continuous peroxide bleaching—originally developed and perfected by Du Pont.

Q. What makes Du Pont Solo-Matic process different from other continuous-bleaching processes?

A. Cloth can be bleached in *one* operation with the Solo-Matic process. No severe caustic pretreatments are required.

Q. What are the important advantages of bleaching in one operation?

A. The cotton fabric is subjected to fewer chemical treatments and less severe mechanical handling—there are fewer operations to observe, and chemical control is simple.

Q. What types of fabric can be bleached by the Du Pont Solo-Matic process?

A. Any type of fabric normally continuously peroxide-bleached.

Q. Is any special equipment required for the Du Pont Solo-Matic process?

A. No. The Du Pont Solo-Matic process can be used with *any rope or open-width* peroxide continuous bleaching equipment.

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Q. Does the Du Pont Solo-Matic process cost more to operate than multi-stage processes?

A. No. The over-all operating cost is actually *lower* than multi-stage systems. Up to 40% on building space and equipment investment can be saved.

Q. How do the Du Pont Solo-Matic bleaching results compare with other processes?

A. The *absorbency* is higher and the *hand* is distinctly fuller. Fabrics have a distinctive "quality" feel and appearance. Any degree of *whiteness* can be produced.

Q. Can fabrics bleached by the Du Pont Solo-Matic process be dyed successfully?

A. Yes. Good dyeing results are assured by high, uniform absorbency and freedom from mechanical abrasion defects.

Q. Is the Du Pont Solo-Matic process being used commercially today?

A. Yes. It is *now* in use by commission bleacheries handling all types of cotton fabrics—and by integrated mill bleacheries handling all types of piece goods for dyeing, printing and special finishing.

Q. What can the Solo-Matic process do for me—in my mill setup?

A. We will be glad to survey your bleachery operation and submit a confidential report to you. Specific recommendations will be made, and the benefits clearly outlined. There is no cost for this service, and you're under no obligation.

* * *

For more detailed information on the Solo-Matic process —or for help with any peroxide-bleaching problem, contact the nearest Du Pont office listed below or phone Wilmington, Delaware, OLympia 4-5121 (Extension 6039).

DU PONT PEROXIDES

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

ELECTROCHEMICALS DEPARTMENT
Peroxygen Products Division

E. I. DU PONT DE NEMOURS & CO., INC.
Wilmington 98, Delaware

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**Barada & Page, Inc.*

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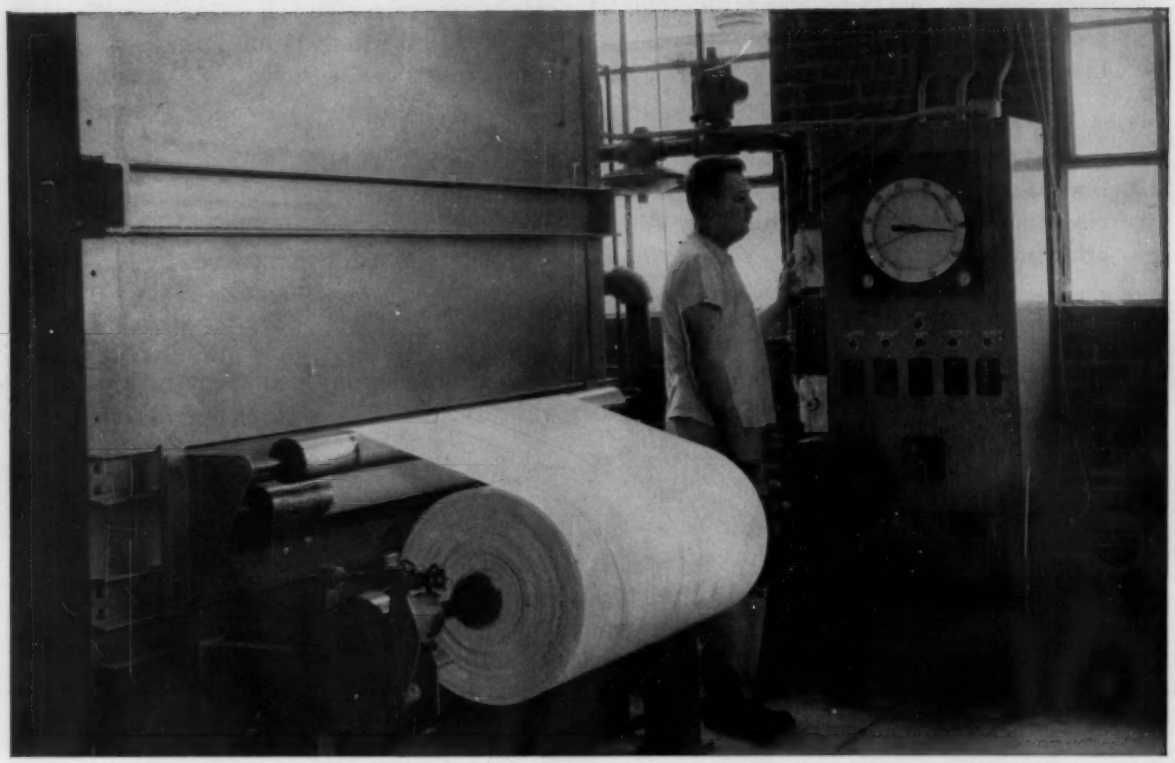

Accurately measure and control nylon heat-setting temperatures . . .

without touching the fabric!

Forget about staining and snagging . . . this Honeywell system eliminates dragging a temperature sensing element over the fabric. And, forget about over- or under-heating . . . this system assures temperature control within extremely narrow limits.

A *Radiamatic* sensing element detects heat rays emitted from the fabric. The rays are focused by a lens on a cluster of tiny thermocouples, creating an electrical signal in proportion to temperature. An *ElectroniK* instrument transforms the signal to a measurement of temperature . . . and controls input of electricity to the heater units, to *maintain pre-set fabric temperature.*

Wherever product temperature is the important determinant of finish, you'll find the *Radiamatic* a valuable production tool. Your nearby Honeywell field engineer can give you complete details. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Aves, Philadelphia 44, Pa.

Honeywell

H HONEYWELL *First in Controls*

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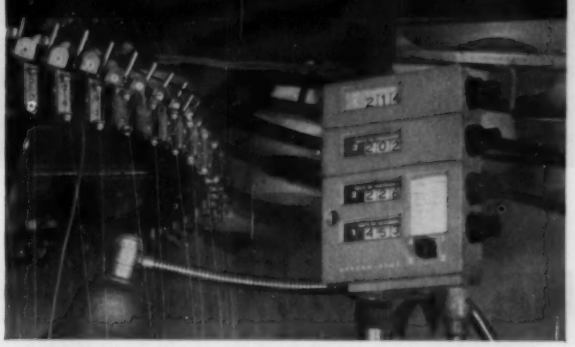
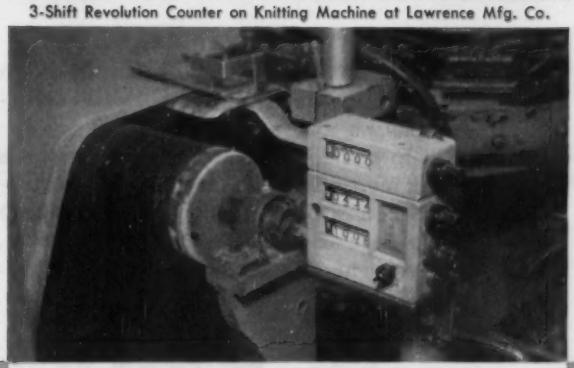
Modern Knitting Mill uses Veeder-Root COST-COUNTROL



3-Shift Revolution Counter on Knitting Machine at Lawrence Mfg. Co.



3-Shift Counter on Tenter Frame

to Speed Production . . . Save Time . . . Eliminate Errors

You'll see 2-3-4 Convertible Revolution Counters on every knitting machine in the high-production mill of the Lawrence Manufacturing Co., Lowell, Mass., division of Ames Textile Corporation.

On the basis of "facts-in-figures" supplied by these Veeder-Root Counters, workers are paid "by the numbers" which simplifies paperwork, provides incentives, and shows workers their exact earning status at all times.

That's why Veeder-Root Cost-*Count*rol is an important factor in the production of Lawrence's top-quality knit goods. Find out the advantages *your* mill can gain by using the same simple basic system. A Veeder-Root engineer will be glad to show you how . . . any time you say. Write:

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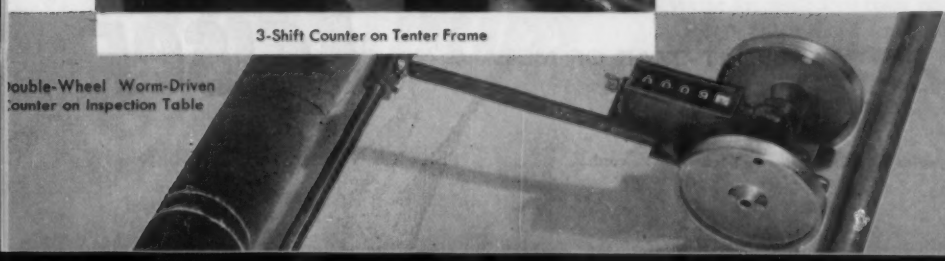
INCORPORATED
"The Name that Counts"



ouble-Wheel Worm-Driven
ounter on Inspection Table

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To you, Mr. Equipment Manufacturer, Kaiser Aluminum offers a unique combination of useful physical and chemical properties for important textile machinery applications: light weight with strength, thermal and electrical conductivity, heat and light reflectivity, corrosion resistance, freedom from rust. Aluminum can be fabricated by all known methods.

Kaiser Aluminum manufactures no textile machinery parts, but does supply the mill products shown above. These include rod, bar, wire, sheet, plate, castings, extrusions, pig and ingot.

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THE BRIGHT STAR OF METALS

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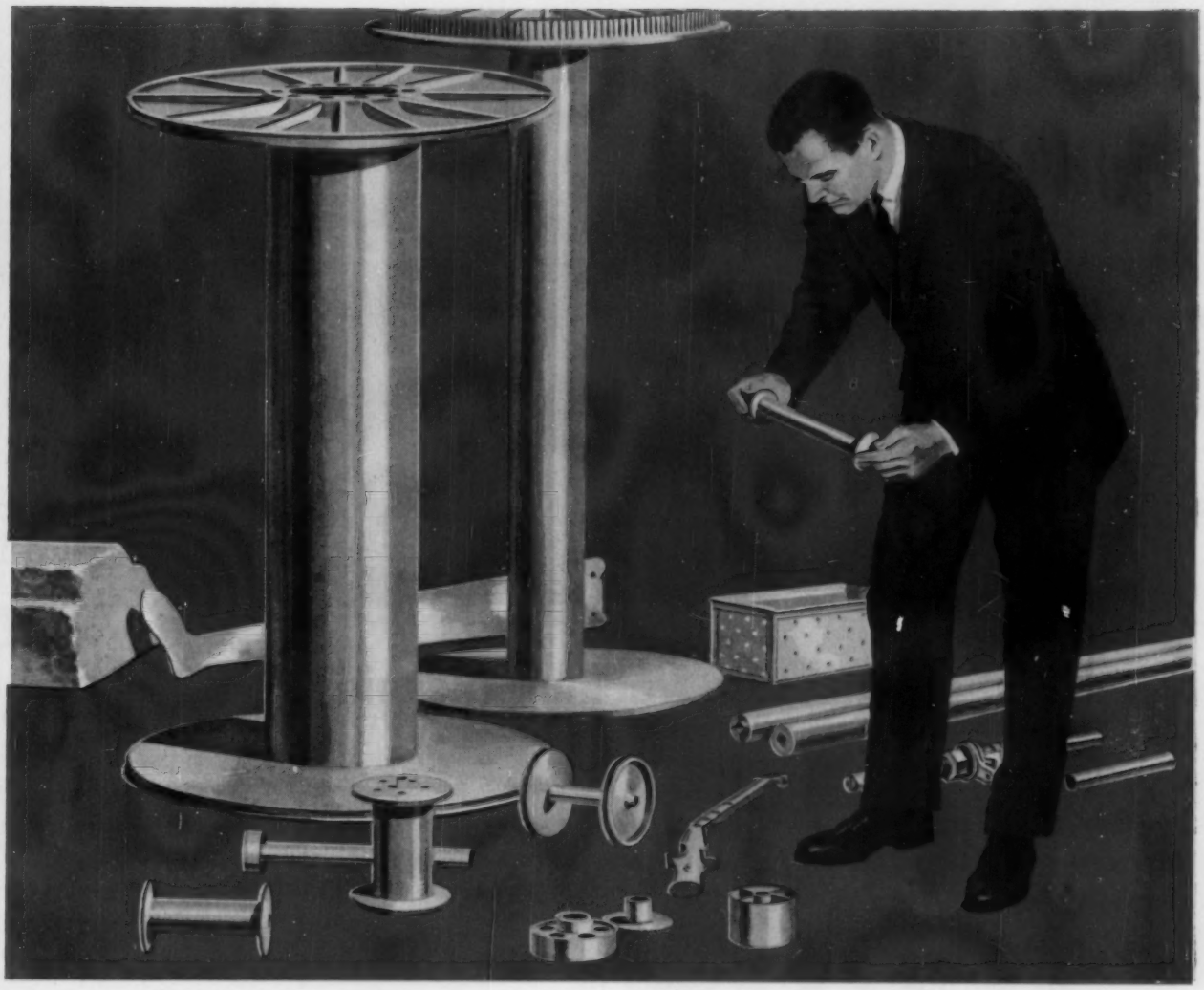

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To you, Mr. Textile Manufacturer, textile machinery fabricated of Kaiser Aluminum offers unique benefits in a wide range of applications . . . die cast parts, spinning spindles, bobbins, warp beams, cloth rolls, stock shells, spools, bins and many other parts. Here are some of the advantages only aluminum offers:

Improved efficiency for high-speed rotating or reciprocating units. Aluminum's light weight reduces inertia, thus permits increased operating speeds.

Longer life for equipment exposed to steam and water. And, because aluminum cannot rust it cannot cause stains on yarn or cloth.

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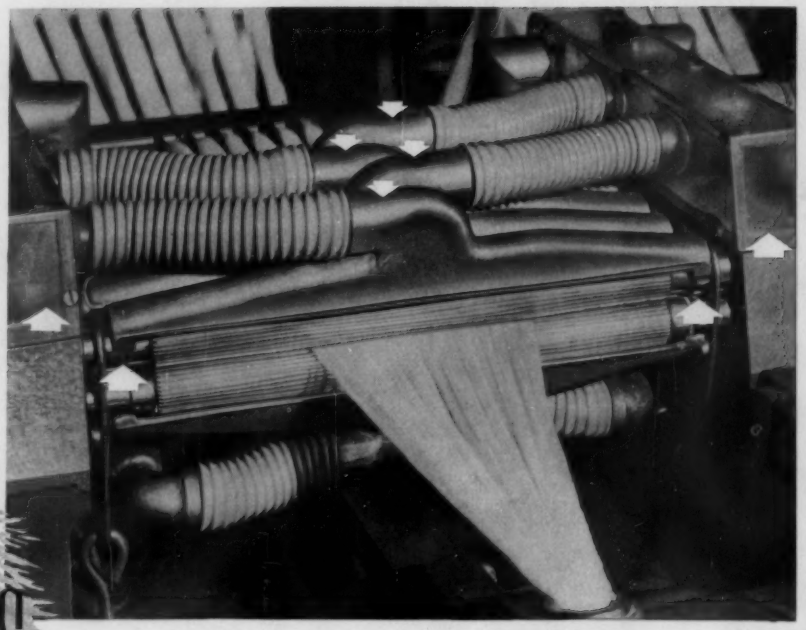
Way Out in front



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DRAFTING'S New Vacuum Cleaning*

It Cleans the ROLLS Each top and bottom roll has its own, individual, full-length, close-fitting cleaner. This gently picks up dirt, trash, and fly *from the rolls* instead of sucking them forcibly from the web. Mill tests show that less than 1% of the collector waste consists of good staple. Note that the vacuum action extends beyond the sliver and over the journals. Flexible tubing adjusts automatically to any roll setting.

Individual Frame Units Each frame has its individual vacuum system and collector box . . . and each delivery has its own plastic viewing section for visual observation of performance.

Better Quality Sliver Tests show that Ideal's Vacuum System eliminates slubs and removes a greater percentage of dirt, trash, and fly.

90% Less Cleaning Time No top or bottom clearers to pick. Has no wipers and no parts rubbing.

Increased Production This Vacuum Cleaning System permits fuller utilization of Ideal Featherouch Drafting's tremendous potential speed. Records show a sustained speed of 370 feet per minute.

Does Not Increase Frame Height

*Patent Pending

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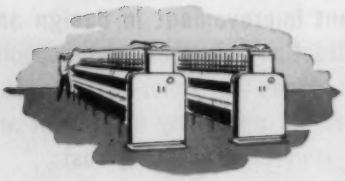

Higher loom speeds made lubrication difficult!"

When a large Southern weaving plant recently had a problem in loom drive lubrication, Sinclair's Representative V. V. Motley, Jr. was asked for a recommendation. He reports:

"This plant had experienced difficulty in lubricating the gear trains that drive the looms. The reduction gears are shielded and the pinions rotate at about 1700 RPM. A grease could not be applied readily or satisfactorily; and, an oil did not provide the retention necessary for the desired lubrication period. In desperation, mixtures of oil and grease had been used in an attempt to lubricate the gears."

NEEDED: AN ADHESIVE OIL. Mr. Motley continues, "Having had experience with problems of this type, I recommended Sinclair DARTAC #15. I knew it would have the necessary body and adhesiveness needed to solve the problem. Trial runs at this plant were so successful that all four of the company's plants were switched to DARTAC" concludes Mr. Motley.

If you have a problem in textile lubrication, get the benefit of a Sinclair Representative's recommendation. Call a local Sinclair office or write to Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

SINCLAIR TEXTILE LUBRICANTS

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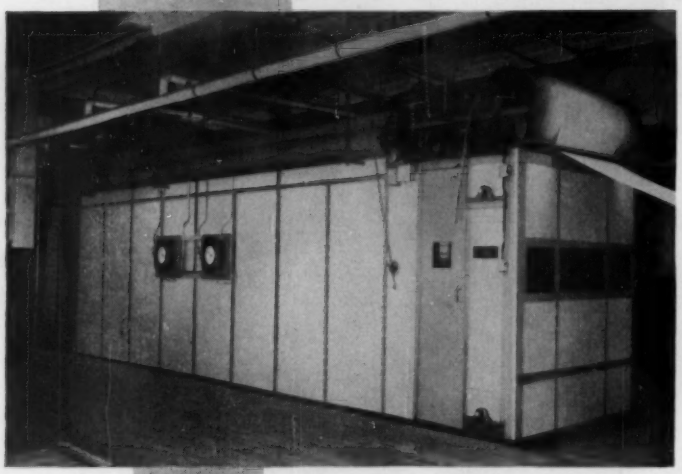
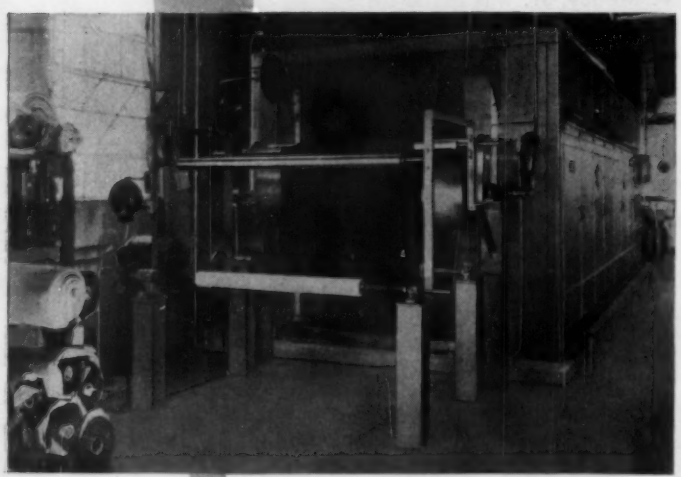
uniform textile curing at LOWER COSTS!



Proctor Loop Curer



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Recent improvement in design and construction make these high-capacity Proctor loop and roller curers unsurpassed for uniformity of product and lowered processing costs.

Greatest Curing Uniformity . . . the result of perfectly controlled temperatures and Proctor's Balanced Air Circulation . . . there's no shading or migration of finish or color.

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Improved Design . . . is the product of Proctor's long experience in supplying machinery to the textile industry . . . Proctor *knows*, and *supplies* what textile men *need* . . . in rugged, dependable, long-lasting and economical equipment.

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MANUFACTURERS OF TEXTILE MACHINERY AND INDUSTRIAL DRYING EQUIPMENT

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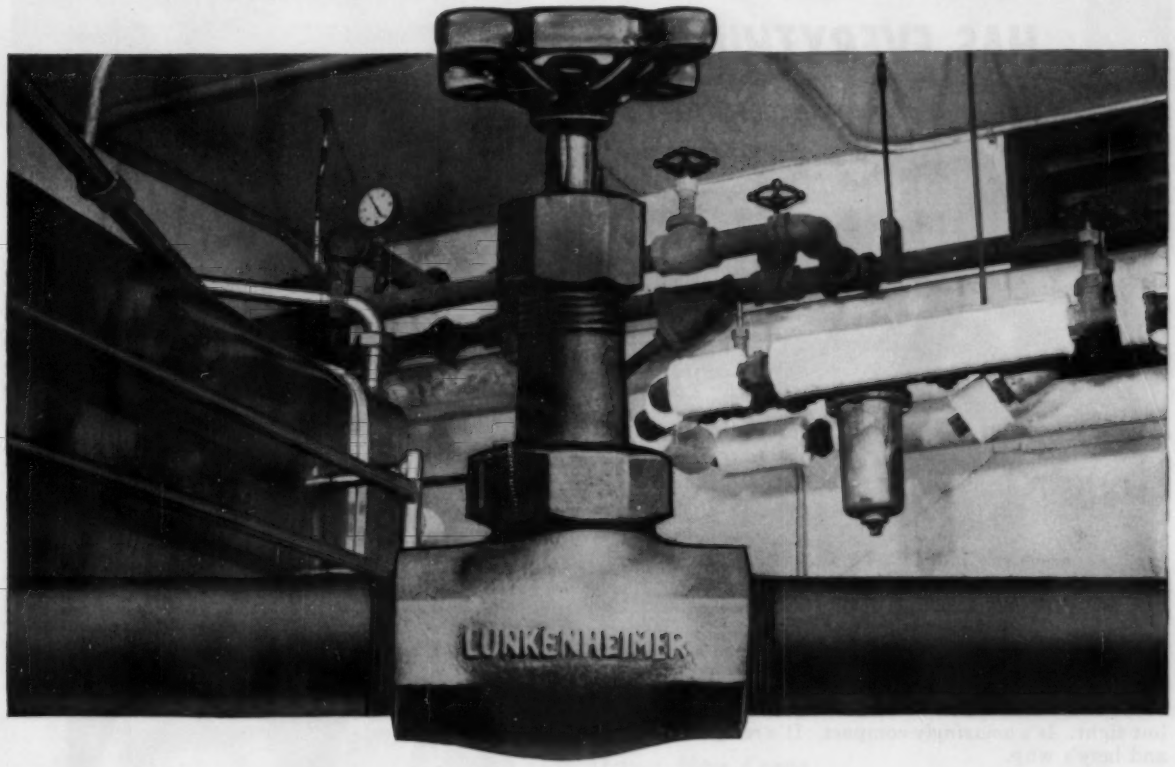
ONE ANSWER
to spiraling maintenance costs



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THIS CUTLER-HAMMER SHIPPER ROD SWITCH HAS *EVERYTHING!*

LINT TIGHT — COMPACT — VERSATILE

The new Cutler-Hammer 10252 Shipper Rod Switch provides every feature the textile industry wants. It's *fully* lint tight. It's *amazingly* compact. It's *really* versatile . . . and here's why.

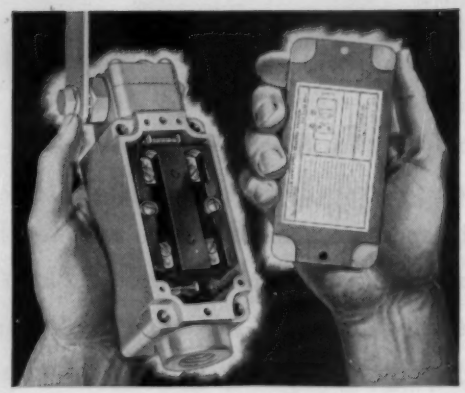
LINT TIGHT—Lint, the big enemy of textile machines and control, is locked out of the 10252. Check these features of construction: 1. heavy die cast enclosure; 2. threaded conduit opening; 3. external mounting holes; and 4. heavy gasketed cover.

COMPACT—Small enough to fit in the palm of your hand, but big in performance. Large heavy duty butt type contacts and a sturdy mechanical mechanism assures years of dependable economical operation. Isolation of the electrical and mechanical mechanisms prevent the wires from "jamming" the switch mechanism.

VERSATILE—The 10252's mounting versatility cuts installation costs to a minimum. Here is a shipper rod switch which you can mount in any position, rotate the lever head to the correct motion plane, select either clockwise or counter-clockwise lever action without altering the switch mechanism, and accurately position the lever for precise operator "feel" and "pin-point" jogging.

The unique double contact design provides both positive motor starting and low voltage protection.

For complete information see your authorized Cutler-Hammer Distributor or write on your company letterhead for Pub. EL-115, Cutler-Hammer Motor Control for Textile Machines. CUTLER-HAMMER, Inc., 1457 St. Paul Avenue, Milwaukee 1, Wisconsin.



The perfect shipper rod switch *for roving frames—drawing frames—combers—narrow fabric looms—carpet looms.*

CUTLER-HAMMER
MOTOR CONTROL
C-H

★ ★ ★

Labor-Union Racketeering

The parade of labor-union leaders before the Senate Rackets Investigating Committee has been an intriguing spectacle. Such practices as tie-ins with gangsters, collusion with dishonest employers, and diversion of union funds to personal use give a strong impression of widespread corruption among union leaders.

Many textile men who have opposed union organization perhaps find satisfaction in the fact that a few textile-union leaders have been in the parade.

Although the shenanigans of these textile-union men so far have not been as vicious as the practices of some of their brothers in other unions, they nevertheless have been corrupt enough to raise a few questions.

Misuse of Funds

One of the most common practices revealed by the investigation seems to be the misuse of union funds.

Many union top men seem to regard the membership fees paid by workers as their personal money. They seem not to hesitate to use union money to buy such things as homes and automobiles for their own use or to use it as personal investment money to make a profit for themselves.

Such exposures at a time when the union is making a drive to organize Southern mills certainly will do the already-faltering drive no good. They eloquently bear out a few key objections to unions that mill men often express.

One objection frequently raised is the poor caliber of union leadership.

Many mill men see that it could be advantageous to both a mill and its workers to have a union, providing that the union would accept a proper responsibility for controlling the workers and for following a sound and reasonable attitude toward the problems peculiar to the company and the industry.

However, unions and union leaders are committed to never-ending battle. Like all minorities, their whole policy consists in gouging for more benefits, with no regard for the good of the whole body.

Lack of Responsibility

Another objection raised is the flagrantly free hand unions have.

While the Taft-Hartley law and the less-biased interpretations of the National Labor Relations Board have made unions a little more responsible than they were a few years ago, there is still nothing to keep unions from committing the kind of corruptions brought out in the Senate investigation.

Nearly all businesses that have to deal with unions would like to see unions made more responsible. If misappropriating funds brings punishment in a bank or a textile organization, why shouldn't it in a union?

If the Federal government permits unions to force mills to collect dues for them, why shouldn't the government also assume responsibility for guarding against personal appropriation of those dues by union leaders?

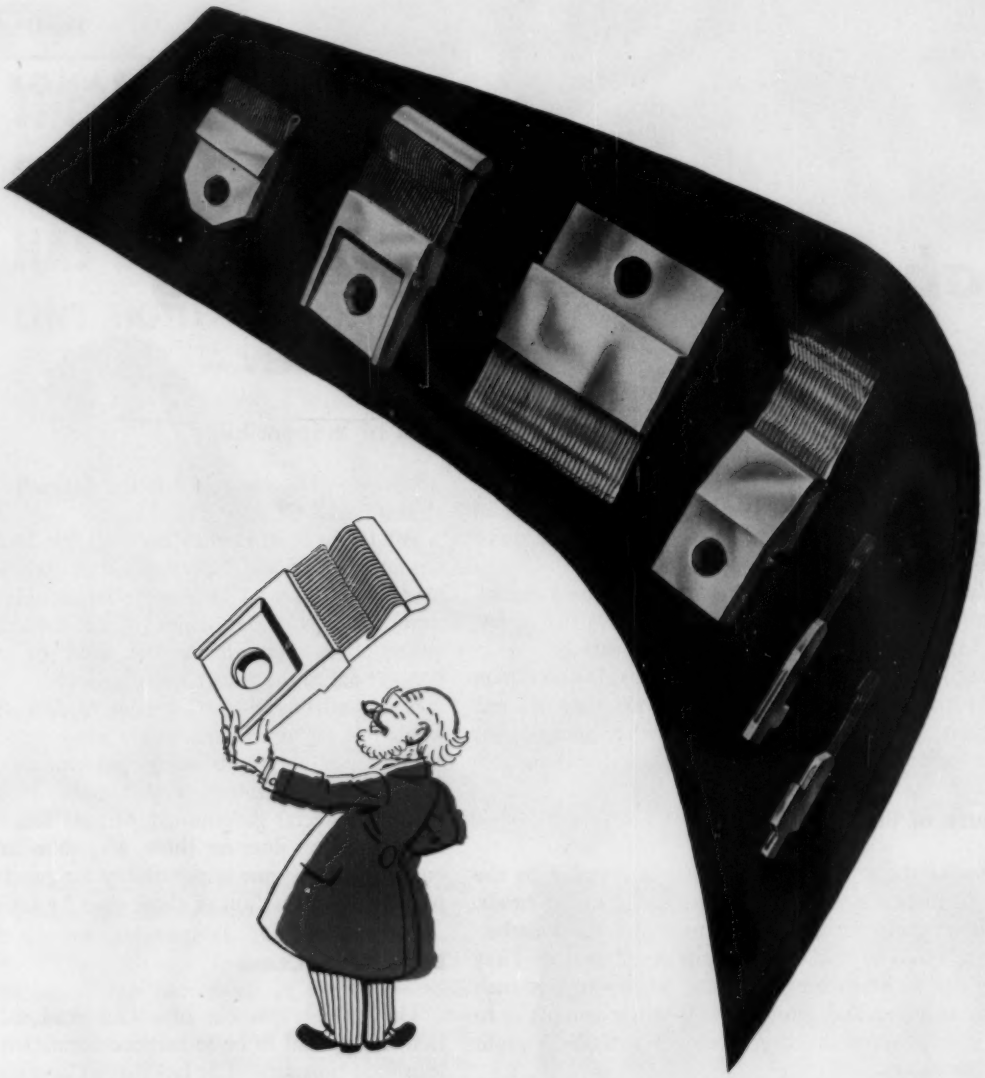
Laws May Come

The primary purpose of a Congressional investigation is supposed to be to gather information for use in legislative programs. The fact that a Congressional committee sometimes uses its investigative power to play partisan or even personal politics does not change the basic legislative fact-gathering function of this type of investigation.

Certainly the current look at racketeering in labor unions is turning up plenty of evidence that unions need some housecleaning done. Perhaps Congress, as a result of the hearings, will revise labor laws to remove some of the rather odorous conditions now existing in unions.

If not, the investigation is at least making public some fancy facts and figures that mill men can use to prod their representatives in Washington.

A. M. Thomas



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1957 MAN-MADE-FIBER TABLE

Shows an Increasing Competitive Field

- Man-made fibers, commercially unknown 60 years ago, now represent one of the most rapidly growing divisions of the chemical industry
- Economists predict continued expansion of production facilities for many years
- New era in fibers presaged by research in chemical intermediates

By W. A. B. DAVIDSON, Associate Editor, TEXTILE WORLD

Stronger competitive activity can be expected as a result of developments in the man-made-fiber field during the last two years.

The period was marked by:

- Commercial availability of two new fibers
- Erection of new manufacturing plants (two of which will be producing brand-new fibers by the end of 1958)
- Continued modification and improvement of existing fibers and yarns
- Stepped-up research into development of alternate methods for producing chemical intermediates vital to the manufacture of better man-made fibers.

Fibers in commercial production are shown on the face of the 1957 table. Verel acrylic staple, Teflon tetrafluoroethylene fiber, and the new linear-type polyethylene monofilaments are listed for the first time.

Fibers scheduled for commercial production are shown on the back of the table. These include Creslan, Darlan, and Zefran. Cotton and wool continue to be listed for purposes of comparison.

Verel

Verel is a product of Tennessee Eastman Co. and is actually a modified acrylic fiber. It comes in various types, including the regular staple for flat fabrics, a medium-shrinkage type, and a high-shrinkage type suitable for such applications as high-bulk sweaters. Blending well with cotton, wool, and other man-made fibers, Verel has good dyeing properties.

Teflon

Teflon is made by Du Pont and is designed mainly for industrial uses. The fiber is made from Teflon resin and retains all of the properties of the resin.

These properties include chemical inertness, resistance to heat degradation, and a unique low-friction, nonsticking surface. But the fiber, because of its molecular orientation, has more toughness and strength than the resin.

Teflon molecules consist of long carbon chains having all of the available bonds completely saturated by fluorine. The molecules are electrically neutral, having no strong polar forces binding them together like nylon and the cellulosic fibers.

Yarns and fabrics of Teflon are being used in industrial applications where fibers are exposed to corrosive chemicals and in applications such as valve packings, gasketing, and filtration fabrics. It has been described as "one of the most slippery materials known."

Polyolefins

The polyethylene column in this year's table has been extensively revised to include the new low-pressure, linear-type polyethylene monofilament yarns. An inclusive derivative heading "Polyolefins" has been added, under which appears the conventional (regular-type high-pressure) polyethylene yarn and the new linear-type, low-pressure polyethylene.

While the poundage produced in no way compares with many of the other man-made fibers, developments in the polyolefins are being watched with keen interest. Results that may influence the production of other types of man-made fibers may occur.

New linear-type polyethylenes are being made in commercial quantities by such leading producers as Reeves Bros., Firestone Plastics, Dawbarn Bros., and National Plastic Products.

Fresh interest was shown during the last year in polyethylene yarns, principally in developments stemming from "three-dimensional" fabrics and from offshoots of research in the procedures by which vinyl compounds, including the simple olefines such as ethylene and propylene, can be converted to symmetrical polymers of greatly improved crystallinity. These polymers, known as isotactic polymers, can be spun into fibers having good mechanical and thermal properties.

Implications of this procedure are important to fiber technolo-

gists. They afford a chance to make very strong, high-melting fibers from relatively cheap and readily available raw materials.

Much work is being carried out in the United States and other countries on the production of polyethylene, polyisopropylene, and polystyrene fibers from the corresponding isotactic polymers. Many problems remain to be solved, particularly in spinning. But a number of industrially important fibers may be developed as a result of this new thinking in polymers.

It is premature to predict whether the new polyolefins will have specific advantages to give them a place along with existing fibers or whether they will replace the linear-type polyethylene in this field. Because research is moving ahead so rapidly, some of the characteristics of the linear-type polyethylene yarns as shown on the 1957 Man-Made-Fiber Table are subject to change.

Fibers Improved

A considerable number of changes have been made to properties of existing fibers.

Tensile strength in regular-, medium-, and high-tenacity viscose rayon has shown steady improvement during the last two years. Breaking tenacity will continue to edge up. Leading rayon producers theorize that it can go as high as 10 grams per denier. With present breaking tenacity of the best high-tenacity rayon at around 5 gpd., it is evident that active research is scheduled in this area.

Solution-dyed rayon staple was broadened considerably, and new colors make an increasingly wide assortment available to mills.

Higher-strength rayon staple is now in commercial production. Because of increased extensibility, the new fiber is compatible with the noncellulosics for blends.

For the first time, cross-section photomicrographs are included for regular-, medium-, and high-tenacity rayon. Considerable difference between the three strengths is clearly evident.

Progress in Modification

Few basic changes in the properties of acetate and triacetate yarns and fibers were made during the last two years, but considerable progress was made in modifications of existing acetate yarns in order to apply certain types to more end uses. Thus we see a wide assortment of cross-section modifications such as "flat" to give added luster with a little more bulk, "star" to give still more bulk, and "Y" to give even further bulk. These are but a few examples of how existing types of acetate filament yarns can be tailored to obtain specific effects for a given purpose.

The basic method of spinning acetate filament lends itself quite readily to extensive modification, and it is partly this facility that has prompted acetate-yarn producers to push this area of research.

Such modified yarns to a certain extent yield the textured effect of spun yarns, and this development has moved to the point where production of acetate staple has been curtailed. The modified, bulkier yarns are also being solution-dyed, and a great deal of success has been attained through this development.

Principal changes to the polyamides, which include nylon 6,6 and nylon 6, cover steady improvement to the yarn and upward revisions in breaking tenacity and tensile strength.

With production of nylon increasing through new plant capacity, new markets are being probed. One of the most promising is tire cord. Another is the use of high-tenacity nylon yarns for tarpaulins and tents. One estimate places this latter use at 70-million pounds of fiber annually.

Stronger nylon staple, introduced this year, is expected to broaden its area of use. Described as a high-strength fiber with a much higher initial modulus than regular nylon staple, it is particularly suitable for blending with cotton. Such uses as work clothing are cited as good outlets.

No changes in properties of glass fibers were reported in the last two years. Its use continues to increase, and gains for the fiber have been steady ever since its introduction to the textile market.

Acrylics Production Boosted

The acrylics continue to increase their share of the total fiber market. With production being stepped up by established producers, plus the entrance of a new producer sometime in late 1958, consumption will grow in the coming years.

Significant change in the acrylic-fiber market during the last two years was the dropping of Orlon filament production and the entrance of Verel, a modified acrylic staple fiber. A new type of acrylic filament with improved dyeability may be coming.

It is evident that before the next Man-Made-Fiber Table is published, some drastic changes must be made in the definition of "acrylic" fiber. The present table makes no distinction between fibers predominantly acrylic and fibers only partially acrylic. A ruling as to definition based on percentages of raw material used in making the fiber is expected to be in force before long.

There are extremely optimistic estimates as to the future of acrylic fibers in the United States. For one, the President's Material Policy Commission predicts that consumption of the acrylics alone in 1960 will hit 325-million pounds and by 1975 it will reach a whoping 1,200-million pounds.

While there is an inclination to view these estimates as excessive, there is little doubt that the future is bright, not only for the acrylics, but also for the polyamides and polyesters. The same commission estimates that consumption of the polyamides in 1960 will reach 300-million pounds and in 1975 800-million pounds. Consumption of the polyesters for 1960 is fixed at 150-million pounds and by 1975 1,000-million pounds. Most economists are predicting a continued expansion of production facilities in these fields for many years.

Already plans have been made to boost production of Orlon from 80-million pounds a year to 120-million pounds, and a 25% increase in Dacron polyester production is in the works.

Notes on the New Man-Made Fibers

Creslan

American Cyanamid Co. expects to have its new Creslan plant ready by late 1958. It is being built in Santa Rosa County, Florida, on the eastern bank of Escambia Bay. Annual capacity is slated for 27-million pounds of staple and tow. An expansion potential of 100% has been embodied in the original plant design.

Creslan represents 10 years' research. It is largely an outgrowth of the company's development of markets for acrylonitrile. Limited quantities of the fiber have been available from American Cyanamid's pilot plant at Stamford, Conn. Preliminary mill experience indicates the new acrylic fiber has good dyeing properties, especially when combined with wool.

Indicated uses include men's, women's, and children's woven garments; knitted underwear and outerwear; and home furnishings.

Method of manufacture: A polymer formed principally from acrylonitrile is dissolved, wet spun, washed, and stretched.

Darlan

B. F. Goodrich Chemical Co. has its new dinitrile staple fiber in pilot-stage production at Avon Lake, Ohio. Although dinitrile fiber is not an acrylic, its properties in some respects parallel the acrylics. The company has high hopes for Darlan in such fields as deep-pile fabrics and knitwear. It also believes the fiber will find good acceptance in industrial uses involving high temperatures and/or acid conditions.

Darlan stems from the company's long-standing research interest in dinitriles. Behind the fiber is a new technology of vinylidene cyanide. Darlan was engineered with an eye on a combination of the aesthetic qualities of natural fibers with ease-of-care so typical of the newer man-made fibers.

Density of Darlan is among the lowest of the fibers. Its resistance to weathering, prolonged exposure to heat, mildew, insects, and acids is said to be equal to, or better, than most other fibers.

Method of manufacture: Darlan is formed from polymer of vinylidene dinitrile. A solution of the polymer is extruded, the solvent is removed, and the resultant yarn stretched.

Zefran

Dow Chemical Co. will have its Zefran plant in production sometime during 1958. The $15-million structure is being erected at Warwick, Va., on the James River near Newport News. Dow calls its new fiber a "nitrile alloy." Initial production will be 12-million pounds of staple annually.

Applications suggested by Dow include general apparel and household uses such as suiting, sportswear, dresswear, knitwear, raincoats, outerwear, blankets, carpeting, pile fabrics, and industrial.

Resistance to rot, chemicals, shrinking, and wear are emphasized as properties of Zefan. It is said to be free from serious pilling.

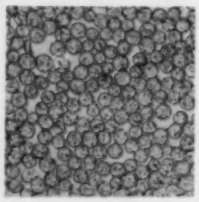
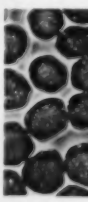
Method of manufacture: A nitrile alloy based on acrylonitrile. A solution of the polymer is extruded and the resulting yarn stretched.

U.S. Mill Consumption of Principal Textile Fibers

Year	Man-made fibers: Rayon and acetate	Man-made fibers: Noncellulosic	Cotton	Wool	Silk	Total
1920	8.7	–	2,828.1	314.2	29.2	3,180.2
1930	118.3					

Man-Made Fibers Scheduled for Commercial Producti

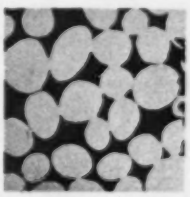
For fibers in regular commercial production, see opposite side of table.

Properties (See "Terminology and References" below).		Acrylic	Dinitrile	Nitril
		Creslan	Darlan	Ze
Microscopic Cross Section. Cross sections shown are representative of the type of fiber.				
Breaking Tenacity (gms. per den.)	Std.	3.3	1.75	3.5
	Wet	3.3	1.5	3.1
	Std. Loop			
	Std. Knot			
Tensile Strength (lbs. per sq. in.)		41,000	26,000	53,000
Breaking Elongation (%)	Std.	32	30	33
	Wet	32	30	33
Elastic Recovery (%)		90 at 1% elongation. 67 at 3% elongation. 48 at 5% elongation.	100 at 3% elongation. 75 at 5% elongation.	99 at 2% elongati 72 at 10% elonga
Average Stiffness (gpd.)		10.3	6	11
Average Toughness		0.53	0.3	0.58

luction

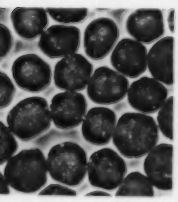
Comparative Properties of Natural Fibers

The figures given below are an approximation of values. Since the natural fibers are not under the control of man, physical properties vary widely from crop to crop and with locale and other variables.

Properties *(See "Terminology and References" below)*		Cotton	Wool
Microscopic Cross Section *Cross sections shown are representative of the type of fiber.*			
Breaking Tenacity (gms. per den.)	Std.	Amer. Upland: 3.0 to 4.9	1.0 to 1.7
	Wet	Amer. Upland: 3.3 to 6.37	0.76 to 1.63
	Std. Loop		
	Std. Knot		
Tensile Strength (lbs. per sq. in.)		44,- to 109,000	20,- to 29,000
Breaking Elongation (%)	Std.	3 to 7	25 to 35
	Wet		25 to 50
Elastic Recovery (%)		74 at 2%, 45 at 5%	99 at 2%, 63 at 20%
Average Stiffness (gpd.)		57 to 60	3.9
Average Toughness		0.15	0.25

Nitrile Alloy

Zefran



elongation.
% elongation.

These tables were compiled from data taken from Textile Organon (Textile Economics Bureau, Inc., 10 East 40th St., New York, N. Y.).

World Man-Made-Fiber Production and Producing Capacity

(millions of pounds)

	Production				Capacity	
	1953	1954	1955	1956	1957	1958
Rayon and acetate filament yarn	2,076	2,023	2,286	2,233	2,861	3,051
Rayon and acetate staple and tow	2,060	2,462	2,743	3,012	3,745	4,191
Total rayon and acetate	4,136	4,485	5,029	5,245	6,606	7,242
Noncellulosic fibers	351	438	582	684	1,015	1,434
Total man-made fibers	4,487	4,923	5,611	5,929	7,621	8,676

U.S. Tire-Cord Production

(millions of pounds)

	Cotton			Rayon			Nylon
Year	Cord		Fabric	Cord		Fabric	Cord and fabric
1939	97		146	–	9	–	0
1948	60		162	–	251	–	incl. with rayon
1949	18		97	44	–	235	incl. with rayon
1950	38		127	50	–	247	incl. with rayon
1951	55		169	36	–	275	4
1952	16		75	69	–	315	8
1953	–	16	–	78	–	351	19
1954	–	12	–	60	–	264	30
1955	–	16	–	87	–	320	49
1956	–	10	–	85	–	249	61

U.S. Production of Man-Made Fibers

(millions of pounds)

Year	Rayon and acetate	Noncellulosic	Glass fiber	TOTAL
1940	471.2	3.2	1.4	475.8
1946	853.9	44.6	9.9	908.4
1947	975.1	47.3	4.1	1,026.5
1948	1,124.3	65.9	8.6	1,198.8
1949	995.7	87.6	8.2	1,091.5
1950	1,259.4	122.4	23.5	1,405.3
1951	1,294.2	170.6	34.5	1,499.3
1952	1,135.8	210.7	45.0	1,391.4
1953	1,196.9	246.7	50.3	1,493.9
1954	1,085.7	284.6	59.2	1,429.5
1955	1,260.7	379.3	75.8	1,715.8
1956	1,147.9	399.9	96.9	1,644.7

Principal Producers of Mar

Allied Chemical & Dye Corp.
National Aniline Div.
261 Madison Ave., New York 16, N.Y.

American Bemberg Corp.
261 Fifth Ave., New York 16, N.Y.

American Cyanamid Co.
30 Rockefeller Plaza, New York 20, N.Y.

American Enka Corp.
530 Fifth Ave., New York 36, N.Y.

American Viscose Corp.
350 Fifth Ave., New York 1, N.Y.

Beaunit Mills, Inc., Coosa Pines Div.
261 Fifth Ave., New York 16, N.Y.

Bolta Products,
Div. of General Tire & Rubber Co.
70 Garden St., Lawrence, Mass.

Celanese Corp. of America
180 Madison Ave., New York 16, N.Y.

Chemstrand Corp.
350 Fifth Ave., New York 1, N.Y.

Courtaulds (Alabama) Inc.
600 Fifth Ave., New York 20, N.Y.

Dawbarn Bros., Inc.
Waynesboro, Va.

Dow Chemical Co.
Warwick, Va.

E. I. du Pont de Nemours & Co., Inc.
Wilmington 98, Del.

Fair Haven Mills, Inc.
Fair Haven, Vt.

Ferro Corp.
Fiber Glass Div.
200 Woodycrest Ave., Nashville 11, Tenn.

Firestone Plastics Co.
307 Fifth Ave., New York 16, N.Y.

B. F. Goodrich Chemical Co.
Div. of B. F. Goodrich Co.
3135 Euclid Ave., Cleveland 15, Ohio

Hartford Rayon Co.
Div. of Bigelow-Sanford Carpet Co.
136 Madison Ave., New York 16, N.Y.

Note: These are simplified definitions. For complete definitions, see ASTM *Standards on Textile Materials*.

Breaking Tenacity – Tensile stress at rupture of a specimen, expressed by grams per denier.

Tensile Strength – Tensile stress at rupture of a specimen, expressed by pounds per square inch.

1930	119.3	–	2,828.1	314.2	29.2	3,186.2
1940	482.1	4.4	3,953.6	407.9	35.8	4,883.8
1946	875.7	53.2	4,803.3	737.5	6.5	6,476.2
1947	987.9	51.4	4,668.1	708.3	2.0	6,417.7
1948	1,149.6	71.6	4,461.2	704.5	7.4	6,394.3
1949	993.5	92.8	3,838.2	511.0	4.4	5,439.9
1950	1,351.6	140.5	4,680.1	647.0	8.4	6,827.6
1951	1,276.6	195.5	4,846.8	495.0	5.6	6,819.5
1952	1,215.5	249.1	4,437.1	477.5	6.9	6,386.1
1953	1,223.0	279.6	4,521.0	503.8	5.4	6,532.8
1954	1,154.8	328.7	4,125.2	389.9	6.4	6,005.0
1955	1,419.2	432.1	4,384.2	428.2	7.2	6,670.9
1956	1,201.1	482.9	4,339.1	454.9	7.7	6,485.7

Man-Made Fibers in the United States

Industrial Rayon Corp.
500 Fifth Ave., New York 36, N.Y.

L-O-F Glass Fibers Co.
1810 Madison Ave., Toledo 1, Ohio

National Plastic Products Co.
Odenton, Md.

New Bedford Rayon Div.
Mohasco Industries, Inc.
295 Fifth Ave., New York 16, N.Y.

North American Rayon Corp.
261 Fifth Ave., New York 16, N.Y.

Oriented Plastics, Inc.
Pembroke, N.H.

Owens-Corning Fiberglas Corp.
Textile Products Div.
598 Madison Ave., New York 22, N.Y.

Pittsburgh Plate Glass Co.
Fiber Glass Div.
One Gateway Center, Pittsburgh 22, Pa.

Poliafil, Inc.
Scranton, Pa.

Polymers, Inc.
Middlebury, Vt.

Reeves Brothers, Inc.
54 Worth St., New York 13, N.Y.

Saran Yarns Co.
Odenton, Md.

Skenandoa Rayon Corp.
261 Fifth Ave., New York 16, N.Y.

Southern Lus-Trus Corp.
P.O. Box 3386, Jacksonville 6, Fla.

Tennessee Eastman Co.
Div. of Eastman Kodak Co.
260 Madison Ave., New York 16, N.Y.

Union Carbide Chemicals Co.
Div. of Union Carbide Corp.
100 E. 42nd St., New York 17, N.Y.

Virginia-Carolina Chemical Corp.
Fiber Div.
99 Park Ave., New York 16, N.Y.

Yarn Prices

Annual Average

(cents per pound)

Year	150-den. viscose rayon yarn	150-den. acetate yarn	Spun rayon yarn 30/1's*	Combed cotton yarn 30/1's	Bradford worsted yarn 2/32's
1939	51.6	54.4	47.4	32.3	123.4
1948	75.2	74.0	89.9	95.3	322.3
1949	73.3	72.7	71.7	78.1	326.1
1950	73.2	74.8	68.6	93.2	332.8
1951	78.0	76.0	78.4	n.a.	456.6
1952	78.0	72.3	86.4	89.6	312.7
1953	78.0	73.3	79.5	83.1	†
1954	78.0	74.0	75.3	76.4	303.6
1955	82.0	76.7	76.5	81.2	274.2
1956	86.1	76.1	76.0	83.5	275.4
1957[a]	91.0	79.0	75.7	82.8	296.3

[a] first-quarter average * 24/1's through 1948 † series changed

Fiber Prices

Annual Average

(cents per pound)

Year	1.5-den., 1½-in. bright viscose staple	5-den. bright acetate staple	Cotton 10-market average*	Fine combing territory-grade wool (scoured basis)	Silk 20-22A grade
1939	25.0	46.0	9.3	82.8	271.3
1948	36.4	48.0	33.8	164.6	260.0
1949	35.8	43.0	31.6	166.4	300.0
1950	36.1	42.5	36.2	199.2	346.5
1951	40.0	48.0	41.4	270.5	483.3
1952	39.5	42.4	38.8	165.3	509.6
1953	35.0	35.6	32.9	172.9	539.5
1954	34.0	34.0	34.1	170.6	492.0
1955	33.7	35.7	34.9	142.1	459.4
1956	32.0	32.0	34.8	137.1	448.6
1957[a]	32.0	32.0	33.6	162.4	455.1

[a] first-quarter average * 10-market average through 1954. From 1955 forward, 14-market average is used.

Terminology and References

Elongation – The extension (in the direction of load) of a fiber, caused by a tensile force. Expressed as a percentage of original length, elongation may be measured either at the point of break or at a specified load.

Elastic Recovery – The percentage of extension immediately recovered by a fiber after removal of a tensile force. (A thorough discussion of this property will be found in *Textile Fibers, Yarns & Fabrics*, Kaswell, E. R., Reinhold Publishing Co., N. Y., pp. 32 to 47.)

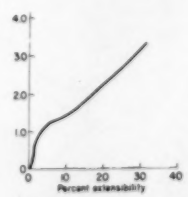
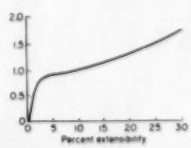
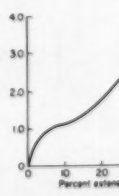
Average Stiffness – The ability of a fiber to carry a load without deformation. This property is based on the modulus of elasticity. (Source: *19th Edgar Marburg Lecture*, by H. DeW. Smith, ASTM, Philadelphia, pp. 16 to 18.)

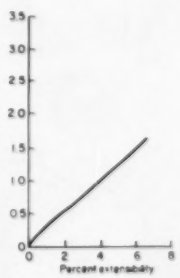
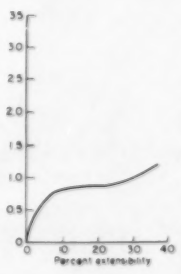
Average Toughness – The ability of a fiber to endure large, permanent deformations without rupture. (Source: H. DeW. Smith; see Avg. Stiffness.)

Specific Gravity – The simple ratio of the weight of a given volume of the fiber to an equal volume of water, taken as standard at stated temperatures.

Moisture Regain – The percentage of moisture on a textile material brought into equilibrium with the standard atmosphere after partial drying, calculated as a percentage of the moisture-free weight.

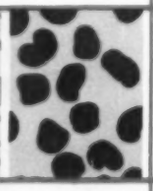
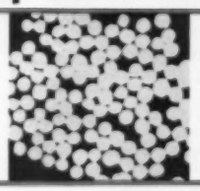
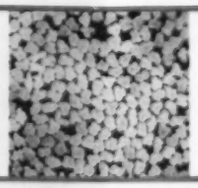
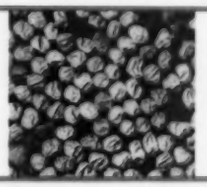
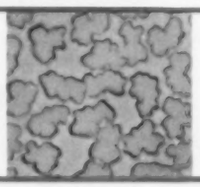
Moisture Absorbency – The amount of moisture (in percentage) held in or on a fiber at specified conditions of temperature and relative humidity. It may be expressed as either moisture content or moisture regain.

Specific Gravity	1.17	1.18	1.19
Moisture Regain	1.3% at standard conditions.	2 to 3%	2.5 at standard cond
Moisture Absorbency	2.6% at 95% r.h.		5% at 95% r.h.
Effect of Heat	Sticking temperature is 450° F.	Retains 100% of strength after 195 days in air at 300° F. Sticking point 340° F.	490° F. sticking
Effect of Acids	Good to excellent resistance to mineral acids.	Little effect even at high concentrations.	Excellent resistance
Effect of Alkalis	Fair to good resistance to weak alkalis.	Fair to good resistance to weak alkalis.	Fair. Resistant to w
Effect of Other Chemicals	Generally good resistance.	Generally good resistance.	Generally good.
Effect of Organic Solvents	Unaffected by dry-cleaning solvents.	Generally insoluble.	Not affected by com
Dyes Used	Excellent affinity for premetallized, chrome, direct, acid, acetate, and basic dyes. Limited affinity for vats, sulfur, and naphthols.	Disperse (acetate) and cationic and azoic dyes with a carrier.	Wide range of col naphthol, sulfur, aft and neutral premetal
Resistance to Mildew	Excellent resistance.	Not attacked.	Not attacked.
Identification	Melts and burns, leaving a hard, black bead. Not affected by glacial acetic acid, chloroform, acetone, or 88% formic acid.	Calco Identification Stain #2 tints fiber grayish pink Dissolves in dimethyl formamide at room temperature. Insoluble in acetone at room temperature.	Round cross secti burns, leaving har Dyed at room tem mins. with 1% (owf. BBA Ex. Conc. (C.I. bath. Other fibers slightly stained.
Typical Stress – Strain Curves *(load in grams per denier)*			

Specific Gravity	1.54	1.32
Moisture Regain	7% at standard conditions.	16% at standard conditions.
Moisture Absorbency	24 to 27% at 95% r.h.	21.9% at 90% r.h., 77° F.
Effect of Heat	Highly resistant to degradation. Yellows at 248° F. after 5 hrs., decomposes at 302° F.	Becomes harsh at 212° F., decomposes at 266° F., scorches at 400° F., chars at 572° F. (Depends on duration of heating and moisture content.)
Effect of Acids	Disintegrated by hot dilute acids or cold concentrated acids. Unaffected by cold weak acids.	Destroyed by hot sulfuric acid; resistant to other strong and weak acids, even when hot.
Effect of Alkalis	Swelling (mercerization) in caustic, but no damage.	Destroyed by strong alkalis; attacked by weak alkalis. Felts with agitation in mild alkalis.
Effect of Other Chemicals	Bleached by hypochlorites and peroxides; oxidizes into oxycellulose. Swells and disintegrates in cuprammonium hydroxide.	Bleached by peroxides or SO_2.
Effect of Organic Solvents	Resistant.	Resistant.
Dyes Used	Direct, vat, azoic, basic, mordant, pigment, sulfur.	Acid, milling, chrome, mordant, vat, indigo.
Resistance to Mildew	Poor unless bleached or acetylated.	Good.
Identification	Burns rapidly, leaves fine gray ash and no bead. Longitudinal appearance is flat and ribbon-like with convolutions. Dissolves in 80% cold sulfuric acid.	Burns with odor of burning feathers, leaves brittle, shiny bead. Yellows in nitric acid. Has longitudinal scales.
Typical Stress-Strain Curves *(load in grams per denier)*		

1957 Revision

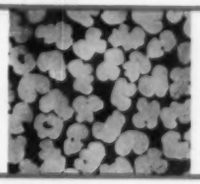
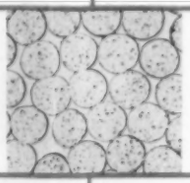
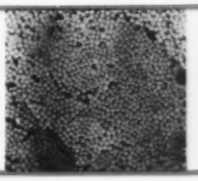
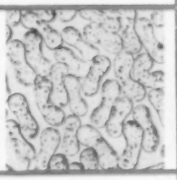
Textile Wor

Properties *Data on fiber properties obtained from the fiber manufacturers.* *(See "Terminology and References" on opposite side of table)*	Regenerated Cellulose (Rayon)						Cellulose
	Viscose			Cuprammonium	Fortisan		Acetate
Microscopic Cross Section *Cross sections shown are representative of the type of fiber.*							
	Regular Filament and Staple	Med. Tenacity Filament and Staple	High Tenacity Filament and Staple	Filament	Regular Filament	Fortisan-36 Filament	Filament and Staple
Breaking Tenacity (grams per den.) — Std.	1.5 to 2.4	2.4 to 3.2	3.0 to 5.0	1.7 to 2.3	6 to 7	Over 8.0	1.3 to 1.5
Breaking Tenacity (grams per den.) — Wet	0.7 to 1.4	1.2 to 1.9	1.9 to 3.6	0.95 to 1.35	85% of tenacity at standard conditions.	75 to 80% of tenacity at standard conditions.	0.8 to 1.2
Breaking Tenacity (grams per den.) — Std. Loop	1.0 to 1.5	1.5 to 2.2	2.3 to 2.5	1.0 to 2.6		50% of yarn strength.	0.9 to 1.3
Breaking Tenacity (grams per den.) — Std. Knot	0.7 to 1.4	1.4 to 2.1	2.2 to 2.4	0.7 to 1.7		40% of yarn strength.	0.9 to 1.3
Tensile Strength (lbs. per sq. in.)	29,- to 46,000	46,- to 65,000	65,- to 105,000	33,000 to 44,500	136,000	Over 155,000	22,- to 28,000
Breaking Elongation (%) — Std.	15 to 30	15 to 20	9 to 22	10 to 17	6	6.2	23 to 34
Breaking Elongation (%) — Wet	20 to 40	17 to 30	14 to 30	17 to 33	6	6	30 to 45
Elastic Recovery (%)	30 to 74 at 4%	97 to 2%	70 to 100 at 2%	17 to 75	100 at 20% of breaking elongation. 60 at 40% of breaking elongation.	85 at 2% elongation. 70 at 5% elongation.	48 to 65 at 4%
Average Stiffness (gpd.)	11.1	16.6	25.5 to 29	15.5	117	135	5.5
Average Toughness	0.19	0.21	0.22 to 0.30	0.14	0.21	0.26	0.17
Specific Gravity	1.46 to 1.52			1.52 to 1.54	1.5	1.5	1.32
Moisture Regain	13% at standard conditions; 11% is commercial standard.			12.5% at 70° F. and 65% r.h.; 11% is commercial standard.	10.7%	9.6	6% at 70° F. and 65% r.h.
Moisture Absorbency	27% at 95% r.h.			27% at 95%; total retention: 100 to 125%	20% at 95% r.h.	20% at 95% r.h.	14% at 95% r.h.

rld's MAN-MADE-FI

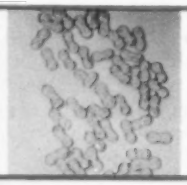
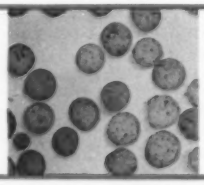
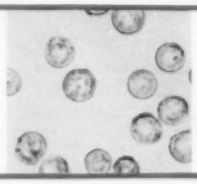
FIBERS LISTED BELOW ARE IN COMMERCIAL PRODUCTION. For new fibers scheduled for early commercial availa

Compiled by the Editors of TEXTILE WORLD

lose Esters		Polyamide Fibers						Glass	Acrylic Fibers		
	Triacetate (Arnel)	Nylon 6,6			Nylon 6				Orlon	Acrilan	Dyn
											
	Filament and Staple	Filament		Staple	Filament		Staple	Filament	Staple	Staple	Sta
		Regular	High Tenacity		Regular	High Tenacity					
	1.2 to 1.4	4.6 to 5.9	5.9 to 8.8	4.0 to 4.7	4.5 to 5.8	6.8 to 8.6	3.8 to 5.5	6.3 to 6.9	2.2 to 2.6	2.5	2.5 to 3.
	0.8 to 1.0	4.0 to 5.2	5.1 to 7.6	3.5 to 4.2	4.3 to 5.3	5.4 to 7.5		5.4 to 5.8	1.8 to 2.1	2.0	2.5 to 3.
	1.1 to 1.2	3.9 to 5.1	5.0 to 7.4	3.7 to 4.2	4.6 to 5.4	7.0		1.0 to 1.4	1.8 to 2.1		
	1.0 to 1.2	3.9 to 5.1	5.0 to 7.4		4.5 to 5.3	6.1		2.0 to 4.0			
	20,- to 26,000	67,- to 86,000	86,- to 128,000	58,- to 69,000	73,- to 84,000	109,- to 125,000	70,- to 80,000	204,- to 220,000	32,- to 39,000	37,- to 40,000	40,- to 5
	22 to 28 for filament. 35 to 40 for staple.	26 to 32	18 to 28	38 to 42	24 to 34	16 to 17.5	37 to 40	3 to 4	20 to 28	36	42 to 30
	30 to 40 for filament.	30 to 37	21 to 32	42 to 46	28 to 38	19 to 24	42 to 46	2.5 to 3.5	26 to 34	44	42 to 3
	88 at 3% elongation. 43 at 10% elongation.	100 at 2% 100 at 8%	100 at 4%		100 at 2% 100 at 8%	100 at 4%	100 at 2%	100		99 at 2% 89 at 5%	94 at 2
	5.2	18	32	10	23	48	17 to 20	322	10	7	8.2
	0.16	0.76	0.85	0.87	0.67	0.75	0.64 to 0.78	0.07	0.40	0.46	0.53
	1.3	1.14			1.14			2.54	1.14 to 1.17	1.17	1.30 a
r.h.	3.2	4.5% at 65% r.h.			4.0 to 5.0 at 65% r.h.			None.	1.5% at 65% r.h.	1.2% at 65% r.h., 70° F.	0.3 to 70° F.
		8% at 95% r.h.			8.0 to 8.5 at 95% r.h.			Up to 0.3% (surface).	2.5% at 95% r.h.	5% after centrifuging.	Close 78° F.

IBER TABLE

l availability, see opposite side of table.

ic Fibers			Polyester Fiber			Vinyl Derivatives		
	Dynel	Verel	Dacron			Vinyon HH	Saran	
								
	Staple	Staple	Filament Regular	Filament High Tenacity	Staple	Staple	Monofilament	Continuous Filament
	2.5 to 3.3	2.5 to 2.8	4.4 to 5.0	6.0 to 7.0	3.8 to 4.3	0.7 to 1.0	1.15 to 2.3	Up to 2
	2.5 to 3.3	2.4 to 2.7	4.4 to 5.0	6.0 to 7.0	3.8 to 4.3	0.7 to 1.0	1.15 to 2.3	Up to 2
			4.0 to 4.6		3.4 to 3.9		0.7 to 1.0	1.2
							1.0 to 1.2	1.3
	40,- to 57,000	42,- to 47,000	77,- to 88,000	106,- to 123,000	67,- to 76,000	12,- to 17,000	15,- to 45,000 (oriented).	44,000
	42 to 30	33 to 35	19 to 25	9 to 11	30 to 36	100 to 120	15 to 25 unoriented. 20 to 30 oriented.	15 to 25 at break
	42 to 30	32 to 34	19 to 25	9 to 11	30 to 36	100 to 120	Same wet	Same w
	94 at 2%	88 at 4% elongation. 55 at 10% elongation.	97 at 2% 80 at 8%	100 at 2% 90 at 8%			95 at 10% (slow)	95 at 1 (slow)
	8.2	8.0	21	65	12	1.5	7 to 10	8 to 12
	0.53	0.46	0.78	0.50	1.03	1.3	0.165 to 0.265	0.125
	1.30 at 25° C.	1.37	1.38			1.33 to 1.35	1.70 ± 0.05	
.,	0.3 to 0.4% at 70° F., 65% r.h.	3.5 to 4% at standard conditions.	0.4% at 65% r.h.			Up to 0.5%	None.	
ug-	Close to 1% at 78° F. 95% r.h.		0.5% at 95% r.h.			0.1%	0.1% at 95%.	

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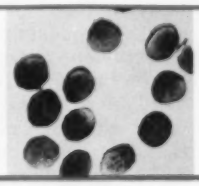
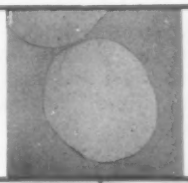
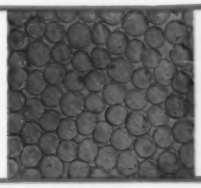
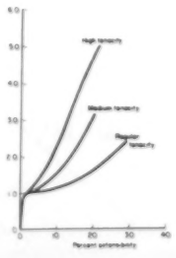
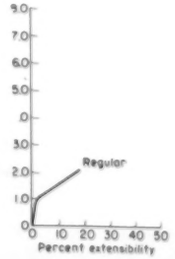
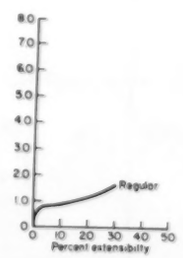
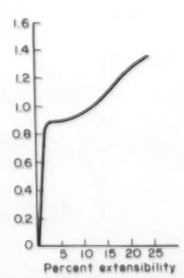
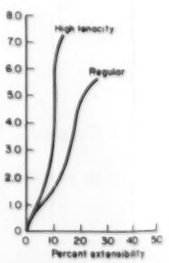
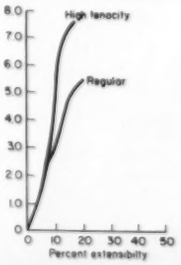
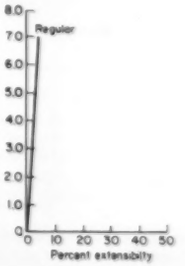
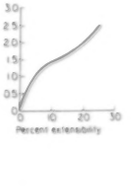
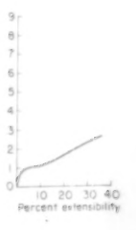
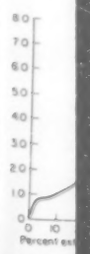
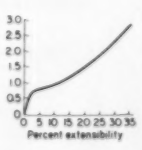
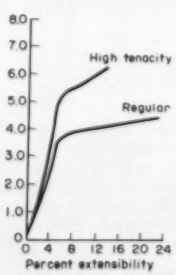
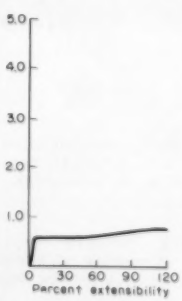
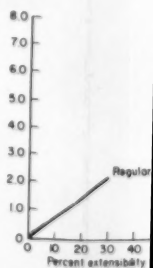
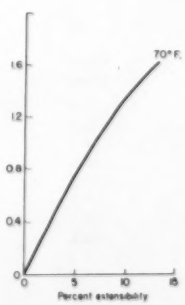
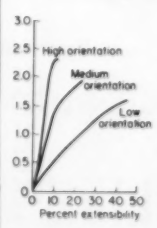
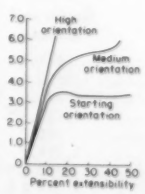
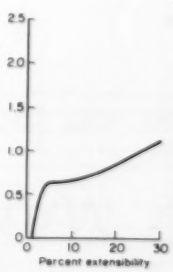
...es		Fluorocarbon Fiber	Polyolefins		Protein Fiber
			Conventional polyethylene (High-pressure type)	Linear polyethylene (Low-pressure type)	
Saran		Teflon			Vicara
					
Continuous Filament	Staple	Filament	Monofilament	Monofilament	Staple
Up to 2	Up to 1.5	1.6	1.0 to 3.0	5.0 to 7.0	1.20 to 1.45
Up to 2	Up to 1.5	1.6	1.0 to 3.0	5.0 to 7.0	0.65 to 0.85
1.2		1.2			
1.3		1.3	1.0 to 2.5	3.0 to 4.5	
44,000	33,000	47,000	11,- to 35,000	50,- to 90,000	19,- to 21,000
15 to 25 at break	15 to 25 at break	13	20 to 80	10 to 40	25 to 35
Same wet	Same wet	13	20 to 80	10 to 40	25 to 35
95 at 10% (slow)	95 at 10% (slow)		90 to 95 at 5% (slow)	Slow.	99 at 2% (dry) 80 at 5% (wet)
8 to 12	8 to 12	12	2 to 12	20 to 50	3.5
0.125	0.125	0.12	0.3		0.19
		2.3	0.92	0.95 to 0.96	1.25
		0%	None.	None.	10% at standard.
		0%	Less than 0.01%	Less than 0.01%	25% at 95% r.h.

Moisture Absorbency	27% at 95% r.h.	27% at 95%; total retention: 100 to 125%.	20% at 95% r.h.	20% at 95% r.h.	14% at 95% r.h.
Effect of Heat	Does not melt. Loses strength at 300° F. Decomposes at 350 to 400° F.	Decomposes at about 300° F.	Scorches in ironing at about 20° C. higher than cotton; otherwise like other cellulosic yarns.	In general, same as cotton.	Becomes sticky at 350 to 375° F.; softens at 400 to 445° F.; melts at 500° F.; burns relatively slowly.
Effect of Acids	Similar to cotton; hot dilute or cold concentrated disintegrate fiber.	Similar to viscose; hot dilute or cold concentrated disintegrate fiber.	Similar to cotton and viscose.	Similar to cotton and rayon.	Concentrated solutions of strong acids decompose.
Effect of Alkalis	Strong solutions cause swelling and reduce strength.	Dilute have little effect; strong solutions cause swelling, loss of strength, and ultimate disintegration.	Similar to cotton and scose.	Similar to cotton and rayon.	Strong alkalis saponify into regenerated cellulose.
Effect of Other Chemicals	Attacked by strong oxidizing agents, not damaged by hypochlorite or peroxide bleaches.	Not attacked by oxidizing agents; not damaged by hypochlorite or peroxide bleaching solutions.	Similar to cotton	Similar to cotton.	Attacked by strong oxidizing agents; not damaged by hypochlorite or peroxide bleaching solutions; soluble in phenol.
Effect of Organic Solvents	Generally insoluble; soluble in cuprammonium and a few complex compounds.	Insoluble; soluble in cuprammonium solutions and some other compounds.	Resistant.	Similar to cotton and rayon.	Soluble in acetone, concentrated and glacial acetic acid, some other solvents.
Dyes Used	Same as for cotton; medium- and high-tenacity are harder to dye.	Similar tn viscose rayon and cotton.	Cotton colors; rate of dyeing slower than cotton.	Cotton colors, rate of dyeing slower.	Dyed by vat, azoic, and special acetate dyes; has affinity also for some acid and mordant; all basic dyes; pigment and solvent dyes.
Resistance to Mildew	Attacked.	Attacked.	Attacked	Attacked.	High (discoloration only).
Identification	Does not melt; burns readily with little ash; insoluble in acetone.	Does not melt; burns with but little ash; insoluble in acetone; dissolves in ammoniacal copper solution.	Fine cross section similar to acetate, but reacts similar to cellulose.	General tests used for high-strength rayon.	Will melt in presence of flame, forms hard black ball on tip; soluble in acetone; insoluble in methyl chloride.
Typical Stress-Strain Curves (load in grams per denier)					

		8% at 95% r.h.	8.0 to 8.5 at 95% r.h.	Up to 0.3% (surface).	2.5% at 95% r.h.	5% after centrifuging.	Close to 78° F., 9
	Melts at approximately 300° C. (572° F.). Heat-treated Arnel will not stick when ironed at temperatures up to 250° C. (482° F.).	Melts at 482° F.; yellows slightly at 300° F. when held for 5 hrs.	Melts at 420° F., yellows slightly at 300° F. when held for 5 hrs.	Strength begins to decrease at 600° F. and continues to temperature of 1,000 to 1,500° F. Softens at 1,500° F.	Retains 100% strength after 32 days in air at 257° F. Sticking point 455° F. (Copper-block method).	5% shrinkage at 487° F.	Will not combustio age start F. in un state unl lized at temperatu
	Similar to acetate; unaffected by dilute solutions of weak acids; strong acids may cause deterioration.	Boiling in 5% hydrochloric acid ultimately causes disintegration; dissolves with at least partial decomposition in cold concentrated solutions of hydrochloric, sulfuric, and nitric acids.	Oxidizing agents and mineral acids such as hydrochloric and sulfuric cause degradation. Others such as benzoic and oxalic will cause loss in tenacity and elongation depending upon time and concentrations.	Attacked by hydrofluoric, strong hydrochloric or sulfuric, and hot phosphoric acids.	Good to excellent resistance to mineral acids.	Good to excellent resistance to mineral acids.	Little ef at high tions.
	Little or no effect at 9.5 pH at 200° F. for 16 hours; saponified by high alkali concentrations.	Substantially inert.	Substantially inert.	Attacked by hot solutions of weak alkalis and cold solutions of strong alkalis.	Fair to good resistance to weak alkalis.	Fair to good resistance to weak alkalis.	Little ef at high tions.
	Attacked by strong oxidizing agents; not damaged by hypochlorite or peroxide bleaching solutions.	Generally good resistance.	Generally good resistance.	Generally good.	Not harmed by oils, greases, neutral salts, and some acid salts.	Not harmed by oils, greases, neutral salts, and some acid salts.	Generally sistance.
	Unaffected by common solvents; swollen by acetone, other ketones, and trichloroethylene. Soluble in methylene chloride.	Generally insoluble; soluble in some phenolic compounds and in concentrated formic acid.	Generally insoluble; soluble in some phenolic compounds and in concentrated formic acid.	Insoluble.	Not harmed by common solvents.	Insoluble in common solvents such as benzene, petroleum ether, acetone, ethanol, carbon tetrachloride, etc.	Softened acetone other ket affected cleaning
	Selected dispersed acetate dyes, developed azo colors; solvent dyeing.	Disperse and acid are usually preferred, but most other classes are also used.	Has a marked affinity for all types of dyestuffs, including direct, acid, premetallized acid, chrome, and vat colors as well as the newer complex types. New color effects may be obtained in cross-dyeing when used in conjunction with other types of nylon.	Resin-bonded pigments. Special technique utilizing protein film applied during manufacture for vat, direct, acid, and chrome.	Cationic, disperse, acid (copper technique), and selected vat and naphthol.	Full shade range with acetate, wool, basic, developed (azoic), and vat dyes. Limited range with directs and sulfurs.	Acetate, rect, ba metallize vat.
	Extra high.	Not attacked.	Not attacked.	Not attacked. (Binder may be, however.)	Not attacked. (Material on the fiber may be attacked.)	Not attacked. (Material on the fiber may be attacked.)	Not attack
	Soluble in methylene chloride alcohol mixture.	Melts before burning, self-extinguishing; insoluble in acetone or boiling NaOH solutions; soluble in concentrated formic acid and xylenol.	Melts before burning, self-extinguishing; insoluble in acetone or boiling NaOH solutions; soluble in concentrated formic acid and xylenol. Dissolves slowly in chloral hydrate.	Does not burn.	Melts and burns, leaving hard, black bead. Not affected by glacial acetic acid, chloroform, acetone, or 88% formic acid.	Burns, leaving hard, black bead. Generally round cross section. Insoluble in acetone, formic acid, 70% H_2SO_4, sodium hypochlorite. Soluble in dimethyl formamide.	Staple has ribbon-sha section. from flame a hard, bl ular bead. tinguishin
							

Close to 1% at 78° F., 95% r.h.		0.5% at 95% r.h.	0.1%	0.1% at 95%.
Will not support combustion. Shrinkage starts at 250° F. in untensioned state unless stabilized at a higher temperature.	Will not support combustion. Exposure to excessive pressure or temperatures over 300° F. causes stiffening and discoloration.	Melts at 480° F.	Becomes tacky and shrinks at 150° F., softens at about 170° F., melts at 260° F. Will not support combustion.	Softens at 240 to 280° F. S
Little effect even at high concentrations.	Excellent resistance even at high concentrations.	Good resistance to most mineral acids. Dissolves with at least partial decomposition by concentrated solutions of sulfuric acids.	None.	Fair resistance to concentra cellent to others.
Little effect even at high concentrations.	No effect on tenacity, some discoloration.	Good resistance to weak alkalis and moderate resistance to strong alkalis at room temperatures. Disintegrated by strong alkalis at boiling temperatures.	None.	Unattected by most with the monium hydroxide.
Generally good resistance.	Not affected by most common chemical compounds.	Generally good resistance. Excellent resistance to bleaches and other oxidizing agents.	Generally resistant.	Generally good resistance.
Softened by warm acetone and certain other ketones. Unaffected by dry-cleaning solvents.	Not affected by dry-cleaning solvents or most organic chemicals other than acrylic-type solvents. Dissolves in warm acetone.	Generally insoluble. Soluble in some phenolic compounds.	Soluble in ketones and some chlorinated hydrocarbons; swells and softens in ethers, esters, aromatic hydrocarbons, dioxane, propylene oxide.	Not affected by alcohols or carbons, halogenated hydro tones. Esters and ethers ma in varying degrees.
Acetate, acid, direct, basic, premetallized, some vat.	Neutral dyeing premetallized, acetate and basic or cationic.	Disperse (acetate), and developed (azoic) with carrier, or at high temperatures.	Dyed with disperse dyes with aid of certain swelling agents; solvent methods; pigment dyeing.	Colored by pigmentation d Special dyes and procedures
Not attacked.	Not attacked.	Not attacked.	Not attacked.	Not attacked.
Staple has irregular ribbon-shaped cross section. Shrinks from flame to leave a hard, black, irregular bead. Self-extinguishing.	Turns reddish-brown but does not dissolve when placed in pyridine and heated.	Melts before burning. Soluble in hot metacresol but not soluble in acetone or concentrated formic acid.	Softens at a relatively low temperature 170° F.; melts before burning; does not support combustion; insoluble in acetone; insoluble in 90% phenol.	Does not support combustion soluble in acetone; dissolve elevated temperatures.
				

	0%	Less than 0.01%	Less than 0.01%	25% at 95% r.h.
0° F. Self-extinguishing.	Very high heat resistance. No degradation at temperatures up to 400° F. Sublimation rate (weight loss) at 554° F. = 0.0002% per hr.; at 806° F. = 1.5% per hr. Vapors toxic.	5 to 8% shrinkage at 165° F., 50 to 60% shrinkage at 212° F.; melts at 230 to 250° F.; softens at 225 to 235° F.; slow burning.	3 to 5% shrinkage at 165 to 175° F., 8 to 12% shrinkage at 212° F., softens at 240 to 250° F., melts at 255 to 280° F., slow burning.	Similar to wool. Begins to deteriorate at 350° F.
oncentrated sulfuric; ex-	Inert.	Very resistant.	Very resistant.	More resistant than wool against most acids.
with the exception of am-	Inert.	Very resistant with the exception of oxidative agents.	Very resistant with the exception of oxidative agents.	Little or no effect in cold solutions. Slight deterioration in boiling solutions of 5% or higher.
tance.	Only substances known to react with the fiber are alkali metals, fluorine gas at high pressure and temperature, and chlorine trifluoride.	Generally good resistance.	Generally good resistance.	Resistant.
ohols or aromatic hydro- d hydrocarbons, or ke- thers may be detrimental	Inert.	Swollen at room temperature by chlorinated hydrocarbons; soluble at 160° F. Insoluble in aliphatic alcohols, glycerine, ether, carbon disulfide, and acetone.	Generally same performance as the high-pressure type but less pronounced.	Insoluble.
tation during extrusion. cedures available.		Pigmented before extruding.	Pigmented before extruding.	Can be dyed with all usual wool dyes, plus alkaline vats.
	Not weakened.	Not attacked.	Not attacked.	Resistant.
mbustion, but melts; in- dissolves in dioxan at s.	Nonflammable. Fiber has a soft and slippery hand. Insoluble in boiling concentrated sulfuric acid, concentrated hydrofluoric acid, concentrated sodium hydroxide, or organic solvents.	Melts at 230 to 250° F., depending upon molecular weight. Floats on water; insoluble in organic solvents at room temperatures; soluble in toluene, xylene, carbon tetrachloride at 160° F.	Melts at 255 to 280° F., depending upon molecular weight. Floats on water; soluble in aromatic solvents above 60° C.	Burns with bead formation. Insoluble in acetone and hydrochloric acid, organic solvents, glacial acetic, formic acid, phenol, and dimethylformamide.
Regular 20 30 40 50 nt extensibility				

1940	482.1	4.4	3,953.6	407.9	35.8	4,883.8
1946	875.7	53.2	4,803.3	737.5	6.5	6,476.2
1947	987.9	51.4	4,668.1	708.3	2.0	6,417.7
1948	1,149.6	71.6	4,461.2	704.5	7.4	6,394.3
1949	993.5	92.8	3,838.2	511.0	4.4	5,439.9
1950	1,351.6	140.5	4,680.1	647.0	8.4	6,827.6
1951	1,276.6	195.5	4,846.8	495.0	5.6	6,819.5
1952	1,215.5	249.1	4,437.1	477.5	6.9	6,386.1
1953	1,223.0	279.6	4,521.0	503.8	5.4	6,532.8
1954	1,154.8	328.7	4,125.2	389.9	6.4	6,005.0
1955	1,419.2	432.1	4,384.2	428.2	7.2	6,670.9
1956	1,201.1	482.9	4,339.1	454.9	7.7	6,485.7

Yarn Prices

Annual Average

(cents per pound)

Year	150-den. viscose rayon yarn	150-den. acetate yarn	Spun rayon yarn 30/1's*	Combed cotton yarn 30/1's	Bradford worsted yarn 2/32's
1939	51.6	54.4	47.4	32.3	123.4
1948	75.2	74.0	89.9	95.3	322.3
1949	73.3	72.7	71.7	78.1	326.1
1950	73.2	74.8	68.6	93.2	332.8
1951	78.0	76.0	78.4	n.a.	456.6
1952	78.0	72.3	86.4	89.6	312.7
1953	78.0	73.3	79.5	83.1	†
1954	78.0	74.0	75.3	76.4	303.6
1955	82.0	76.7	76.5	81.2	274.2
1956	86.1	76.1	76.0	83.5	275.4
1957[a]	91.0	79.0	75.7	82.8	296.3

[a] first-quarter average * 24/1's through 1948 † series changed

Fiber Prices

Annual Average

(cents per pound)

Year	1.5-den., 1½-in. bright viscose staple	5-den. bright acetate staple	Cotton 10-market average*	Fine combing territory-grade wool (scoured basis)	Silk 20-22A grade
1939	25.0	46.0	9.3	82.8	271.3
1948	36.4	48.0	33.8	164.6	260.0
1949	35.8	43.0	31.6	166.4	300.0
1950	36.1	42.5	36.2	199.2	346.5
1951	40.0	48.0	41.4	270.5	483.3
1952	39.5	42.4	38.8	165.3	509.6
1953	35.0	35.6	32.9	172.9	539.5
1954	34.0	34.0	34.1	170.6	492.0
1955	33.7	35.7	34.9	142.1	459.4
1956	32.0	32.0	34.8	137.1	448.6
1957[a]	32.0	32.0	33.6	162.4	455.1

[a] first-quarter average * 10-market average through 1954. From 1955 forward, 14-market average is used.

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Average Toughness — The ability of a fiber to endure large, permanent deformations without rupture. (Source: H. DeW. Smith; see Avg. Stiffness.)

Specific Gravity — The simple ratio of the weight of a given volume of the fiber to an equal volume of water, taken as standard at stated temperatures.

Moisture Regain — The percentage of moisture on a textile material brought into equilibrium with the standard atmosphere after partial drying, calculated as a percentage of the moisture-free weight.

Moisture Absorbency — The amount of moisture (in percentage) held in or on a fiber at specified conditions of temperature and relative humidity. It may be expressed as either moisture content or moisture regain.

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Textile World

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A New Way To Measure MANAGEMENT PERFORMANCE

The search for new methods for measuring management progress and for use as a guide in making management decisions is a never-ending one. Practically all of the important improvements made in the art of management have resulted from improved methods for measuring some phase of management performance.

Profit and return on investment will always remain the ultimate criteria of management, but any new measuring tool that can be used to help management in its drive for profits and investment returns is a boon to every individual-company management and to the industry.

This article describes such a measuring tool.

The method is based on measuring energy used and paid for, both in the form of power and in the form of labor manhours. It is in use to some extent in other industries, we understand; but the mill use on which this report is based is the first instance, so far as we've heard, of its use in the textile industry.

This measurement method can help management—

- Pinpoint good and bad performance
- Isolate the need for improvement
- Show how management is progressing in one of the basic factors that help determine costs and profits

By P. M. THOMAS, Editor, TEXTILE WORLD

A TEXTILE WORLD REPORT TO MANAGEMENT

New Management Tool: ENERGY MEASUREMENT

The textile industry, like all other manufacturing industries, is engaged in one primary function: converting raw material into salable finished products through the use of energy.

All mills are deeply concerned with labor costs. The present generation of mill management, and perhaps generations to come, is faced with this stark fact: the cost of a manhour of work is steadily rising.

The U.S. economy is geared to creeping inflation; and certain built-in factors—such as cost-of-living wage increases, productivity wage increases, the national debt and the sheer necessity of maintaining an extremely high level of income, etc.—all but guarantee that wages will continue to rise as far in the future as anyone cares to predict.

But manual labor is only one form of energy. As wages continue to increase, mills are forced increasingly to use a cheaper form of energy to replace the too-expensive manual energy.

That cheaper form of enegry is electricity.

Manual vs. Electrical Energy

Every mill man recognizes that such things as mechanical materials handling, automation, combining textile processes (long-draft spinning, tandem dyeing ranges, winding filling on looms, for a few examples), use of fork lift trucks, etc. are aimed at one thing: reducing the manual labor, and therefore wages, required to turn fiber into yarn and finished cloth.

Every mill's record also shows that as these things reduce manual labor they increase the amount of electric power used.

The use of the two forms of energy are so closely related that an analysis of them can be used by the management of any mill to judge its own performance as management in certain areas of responsibility.

What It Will Not Do—

But such an analysis is only a tool of measurement; nothing more.

Its use will not guarantee a profit or a better return on investment. It will not help sales. It will not broaden a mill's markets. And it will not substitute for management skill and judgment.

But it can be used by an alert management to see in exactly what direction certain basic factors of mill operation are moving and whether or not they are moving as rapidly as they were last year or three, five, or ten years ago.

Probably more important, the tool can also be used to judge when an improvement (such as the installation of new machinery or mechanical handling equipment) should be made to hold the mill's present competitive position, improve its position, or keep the mill from folding up.

The Aim: Use More Electricity

It seems an odd statement that mills should consciously and continually look for opportunities to increase their use of electricity.

But that is precisely the lesson of these analyses.

The lesson is not, of course, that the use of electricity can profitably be increased merely by turning on motors and letting them run without doing any work. But it is profitable, even essential, to use more electricity at a reduction of human labor.

The value of the measurements described here lies in the fact that they make a goal of substituting low-cost energy for high-cost energy and constitute a scoreboard of management progress in that important function.

Records Are Available

Most of the types of operating records on which these analyses are based are available in every mill. Therefore it would be an easy matter for almost any mill to set up these tools of measurement for its own performance.

The annual records needed cover production, manhours worked, total payroll, total power cost, and total kilowatt hours used.

The only record that may be missing in many mills is the number of kilowatt hours used. Some mills keep this record; some don't. In any case, the record can be obtained from the power company from which electricity is bought.

All of the breakdowns used in these analyses can be calculated from these five mill-operating records.

Other Analyses Possible

It is entirely possible that trained statisticians can refine these analyses or perhaps see new possibilities in the present ones.

That would be all to the good.

At present, the tool is new, and the mill that devised it undoubtedly will improve on it and its use as experience with it is gained.

However, the vital fact is that a new tool has been found and is already being put to use in the textile industry.

What a Mill's Record Shows

These analyses are based on the records of a successful, modern mill for the years 1937 through 1955.

Throughout that period, the mill has operated 20,000 spinning spindles and 500 looms and employed 550 people. It has been completely modernized since 1945.

Like all other textile mills of its age, it went through the business dip of 1938, World War II, the dip of 1949, Korea, and the dip of 1954.

In addition, during those years the presidency passed from father to son and a storm in 1953 did such vast damage to the plant that a major digging-out, rebuilding, and re-equipping had to be done.

For that reason, performance in 1953 is omitted in the analyses. In some analyses, the rebuilding also affected 1954; and 1954 is omitted in some instances.

The Mill's Record

As shown by the accompanying charts, with 1937 = 100, production is up 62%, kilowatt hours used are up 42%, but manhours worked are up only 18%.

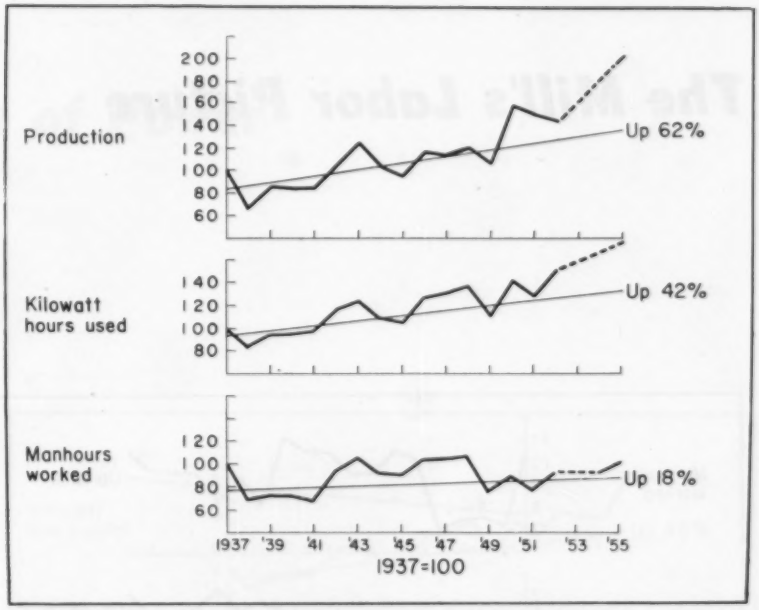
These percentage figures are five-year averages. Production being up 62% means that the average annual production for the last five years (omitting unrepresentative 1953 and 1954) was 62% higher than the yearly average for 1937-1941.

The straight line through the chart connects the first and last five-year-average points to indicate the trend. The chart line itself connects annual index totals.

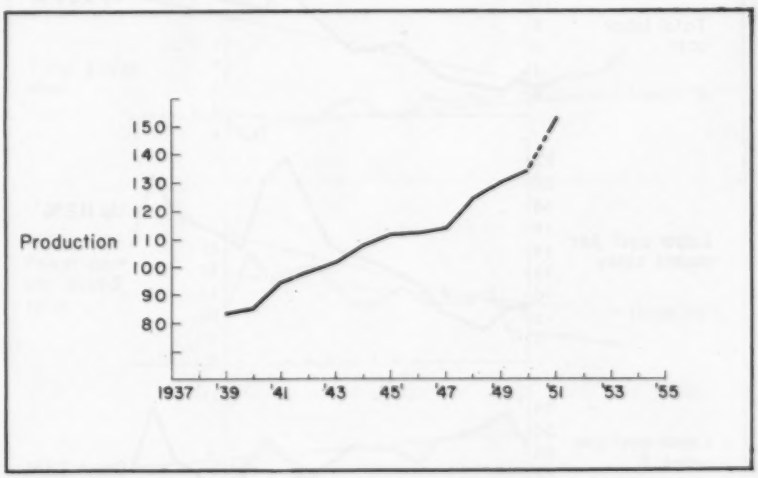
For example: with 1937 = 100, the average production index for 1937-1941 was 82. For the years 1949, 1950, 1951, 1952, and 1955, it was 135.

The significant things shown by these charts are:

- With the same number of spindles and looms and approximately the same working schedule, the mill has increased production quite significantly.
- In doing it, the mill was able to increase its use of cheaper electrical energy much faster than it increased its use of more-expensive manual energy.



THE CHARTS are based on actual yearly totals converted to index figures based on 1937=100. The slanting trend line in each chart connects the first five-year annual average with the last five-year annual average.

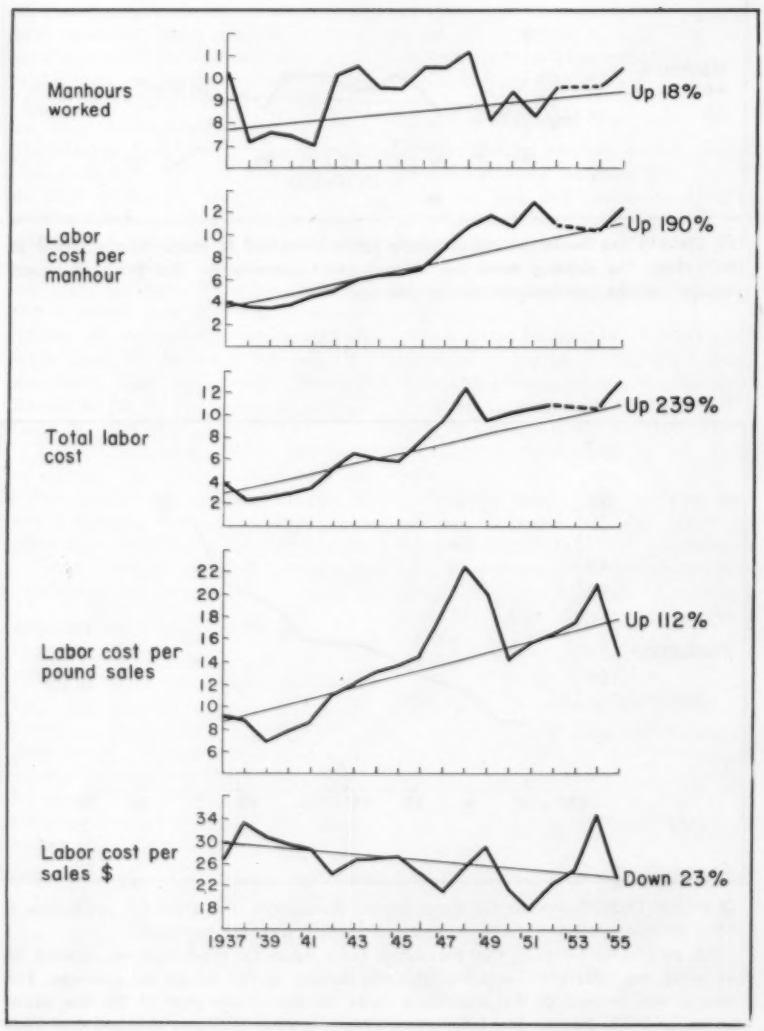


TO SHOW TRENDS without the sharp annual fluctuations, this chart for production is based on what statisticians call a "five-year moving average centered."

That means, for example, that the annual index figure for production was totaled for five years, say 1937-1941, and the total was divided by five to get the average. This average was entered as the production index for the middle year of the five years; that is, for 1939. For the next calculation, 1940, the year 1937 was dropped and 1942 added. Similar averages were calculated and charted for the other years.

Any number of years can be used instead of five. A smaller number will wash out less annual fluctuation; a larger number will wash out more.

The Mill's Labor Picture



The labor picture shown by this mill's record very likely is representative of most mills.

- Labor cost per manhour (second chart), which simply means collective wages, has gone up 190% (five-year average).
- This increase, plus an 18% increase in the actual manhours of labor used, raised the mill's total labor cost a thumping 239%.
- But because of increased production, the labor cost per pound of goods sold increased only 112%.

Measurement No. 1

Here is the first important measurement of management progress.

It is obvious that pounds of goods sold have increased. It is obvious too that something has been done in the mill to increase the amount of goods made and sold without increasing the amount of manual energy in the same proportion.

Unless some improvement had been made in the productivity of labor, the labor cost per pound of goods sold would have increased in direct proportion to the increase in the labor cost per manhour; that is, 190% instead of 112%.

Likewise, the total labor cost would have jumped more than 239%.

Effect of Prices

The lower chart, Labor Cost per Sales Dollar, reflects the effect of prices as well as the cost of labor. Therefore it is not as important a measurement of management performance as the other charts, since management has little or no control over market conditions.

However, it would be a dangerous trend for a mill's record to be moving upward instead of downward. That would mean that the mill's labor cost is getting out of hand, prices were dropping to disastrous levels, or a combination of these two factors.

The Mill's Use of Power

Use of electric power by the mill has increased considerably faster than its use of manpower.

- The kilowatt hours used is up 45% on a five-year average, compared to the 18% increase in manhours worked.
- But the cost per kilowatt hour of electricity is slightly lower. Therefore the total power cost is up only 37%, compared to the 239% for total labor cost.
- Power cost per pound of goods sold is down 14%.

Measurement No. 2

Here is the second important measurement of management performance.

As in the case of labor, something obviously has been done in the mill to reduce the amount and cost of electric energy required to produce a pound of goods.

While actual kilowatt hours used increased, pounds of goods produced increased more. The 4% reduction in the cost per kwh. would not net a 14% drop in the cost of power per pound of goods.

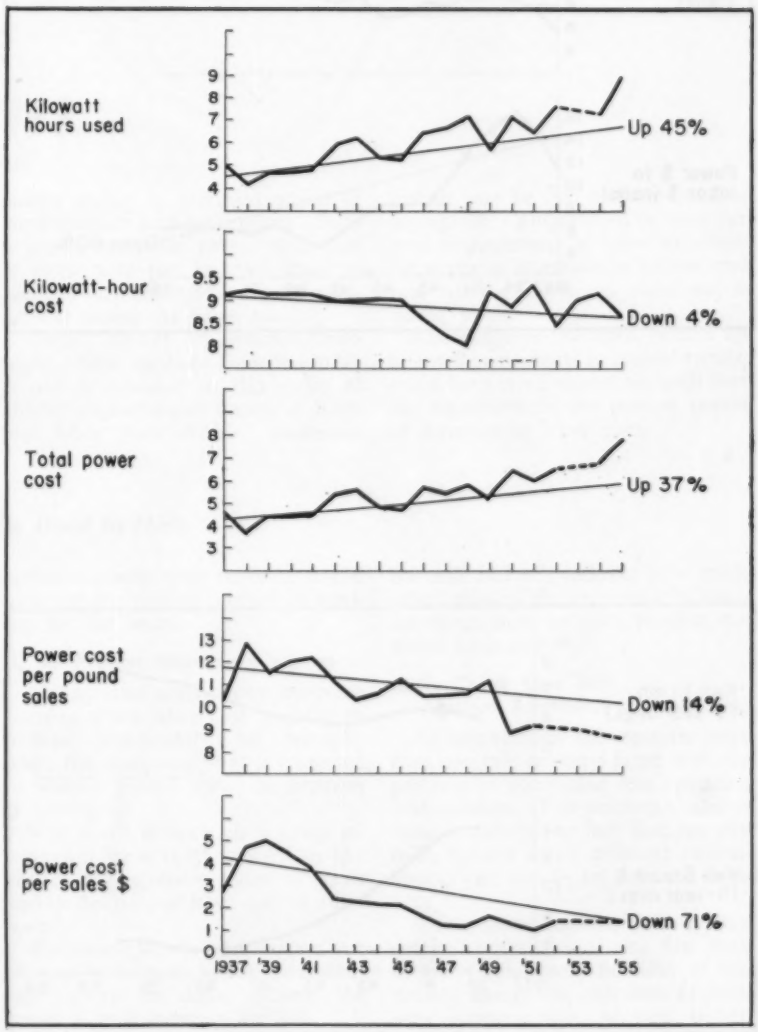
The indication of this measurement compared with Measurement No. 1 is that the more electric energy is substituted for manual energy the lower the total cost of energy in a pound of goods.

The test of management performance, then, is how extensively and how effectively it has substituted electric power for manpower.

Effect of Prices

As in the case of labor, the power cost per dollar of sales is affected by the market price of goods and is not a direct reflection of management performance.

But again, an upward trend instead of a downward trend is a clear warning that management is headed for disaster.



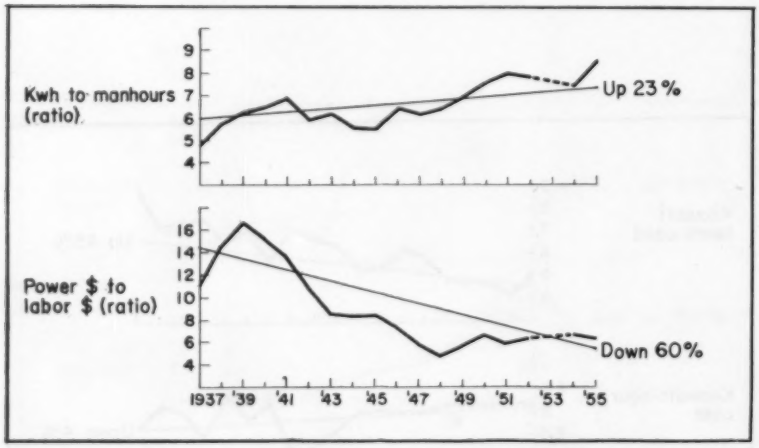
Electric Power vs. Manpower

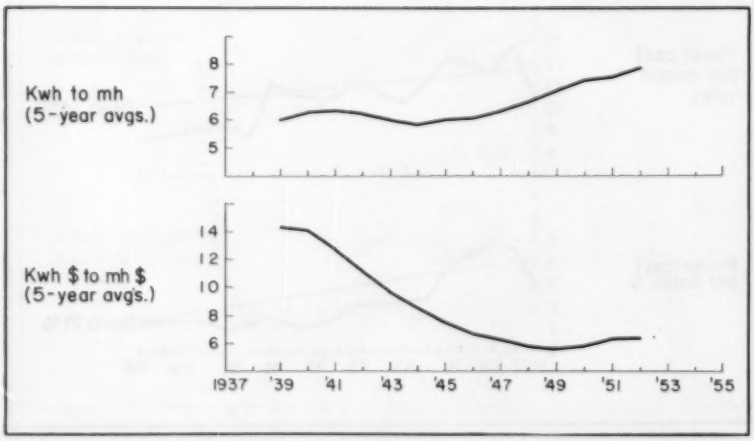
A clearer picture of how the mill is progressing in its substitution of low-cost electric power for expensive manpower is obtained by converting them to a ratio.

The ratio (total kilowatt hours ÷ total manhours) in 1937 was 4.87. That means that in 1937 the mill used 4.87 times as many kilowatt hours as manhours. By 1955 the ratio had risen to 8.64. The five-year-average ratio was up 23%.

• But the cost of manpower rose faster than the mill was able to substitute electric power (second chart). The ratio of power dollars spent to manhour dollars spent was down 60%.

These two trends are seen more clearly in the third and fourth charts, based on five-year moving averages centered.





TRENDS of the relationship (ratio) between kilowatt hours and manhours are seen more clearly in these five-year moving averages centered.

Measurement No. 3

Here is the third important measurement of management performance.

This measurement is the most important of all because it combines in one chart line the two variables electric energy and manual energy. A single chart line therefore shows whether the mill is progressing or losing ground in its energy substitution. It also shows when a trend is reversed.

For example, for 10 years, 1939-48, the mill lost ground (second and fourth charts); that is, dollars spent for labor increased faster than dollars spent for kilowatt hours.

But in 1949 the modernization started in 1945-46 began to pay off in a reversal of the trend.

Rate-of-Change: A Self-Performance Check

An extreme, sensitive, perhaps even harsh, comparison of management performance in one year against that in another year can be obtained by what statisticians call "rate-of-change."

Rate-of-change is also a ratio. It is obtained by dividing the value for one year into the value for another year.

For example, in the top chart on this page the ratio of kilowatt hours used to manhours worked was 4.87 in 1937, 5.76 in 1938, 6.25 in 1939, and 6.45 in 1940. That was a definite and steady improvement.

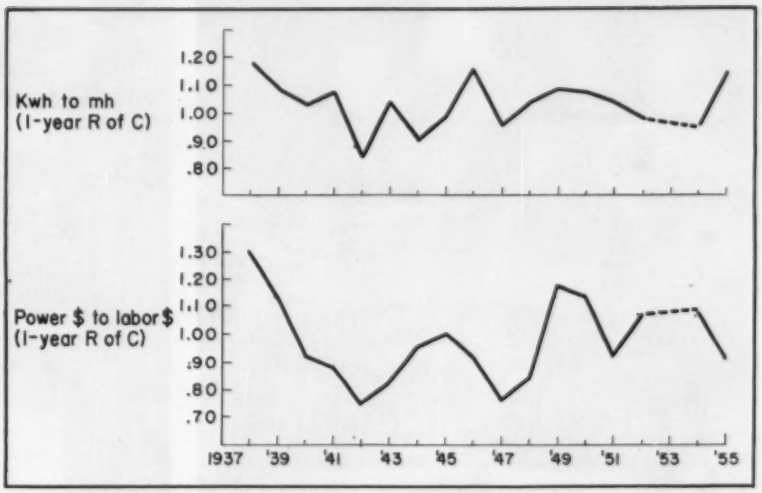
But how did management's performance in one year compare with its performance the year before? Was

improvement continuing at the same rate, or was it speeding up or slowing down?

The rate-of-change from 1937 to 1938 is obtained by dividing 4.87 (1937) into 5.76 (1938). It is therefore 1.19. For 1938 to 1939, it is 1.09 and for 1939-40, 1.03. When these values are charted (fifth chart), the falling line from 1938 to 1940 results.

That means that this mill was improving its ratio of kilowatt hours to manhours each of those years—but its rate of improvement was slowing down each year. No significant speed-up in its rate of improvement, either in the substitution of electric power for manpower or in the ratio of power dollars to labor dollars, was made until 1943.

(Fluctuations can be leveled out by using five-year, or some other number-of-years, averages.)



RATE-OF-CHANGE charts show how the rate of improvement (or decline) in one year compares with another year. Method of calculation is given in the accompanying text.

What Good Is It?

Few mills have any patience for analyzing and charting data. Most mill men are satisfied to spend their energies in trying to decrease the cost of production and sell goods at a price that will net a profit.

At best, that is a hit-or-miss method because market conditions call the game, and a mill has no control over market conditions.

That method is particularly hazardous during an extended period of good business and good prices. Such a period inevitably ends. And that is when mills pay for poor management or reap benefits from good management during the boom times.

Trends cannot be reversed overnight. As is apparent from the mill's record as reflected in this series of charts, improvements aimed at holding labor cost within reasonable bounds may be two or three years in paying off. Therefore it is vital for good management to know in which direction the operation is headed and how fast the movement under way is taking place.

Knowledge of this kind, backed up by intelligent efforts to control trends, could have saved almost any mill that has liquidated in the present period of skyrocketing labor costs.

How These Measurements Can Be Used in Mills

Several uses can be made of these management measurements. Three obvious uses are:

1. To Reduce Energy Costs

The interpretation of this mill's record has hinged on substituting low-cost electric energy for expensive human energy. No one knows better than mill operators that such substitution must take place or a mill has no chance of surviving in a period of rising human-energy costs.

There is no choice in the matter. The question is not whether a mill will constantly make such substitution; the only questions are how fast will the substitution be made and will the mill do it on the basis of precise knowledge of what it is doing or on a hit-or-miss-and-hope-for-the-best method.

These measurements can tell management exactly what its trend is and how fast it is making progress or heading for the rocks.

2. To Predict Necessary Moves

Management nearly always has some warning when labor cost is going to increase significantly; for example, when the minimum wage is increased or when a general round of increases is making up.

The result of such an increase always will be a spurt upward in the cost of turning out a pound of goods and in the ratio of labor cost to other costs.

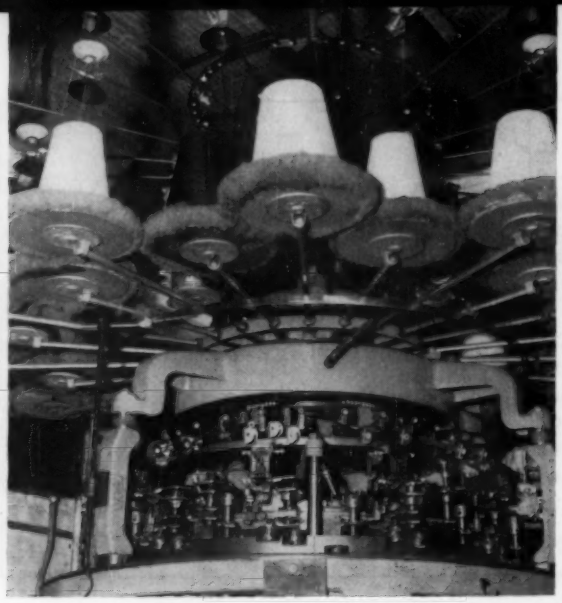
The easiest way to offset such a cost increase is to raise prices. But that can't always be done; witness: the round of wage increases last fall.

These measurements will tell management how seriously a wage increase will affect the trend of energy costs in the mill and will indicate how much substitution of electric energy for manual energy must be made to offset the added labor cost.

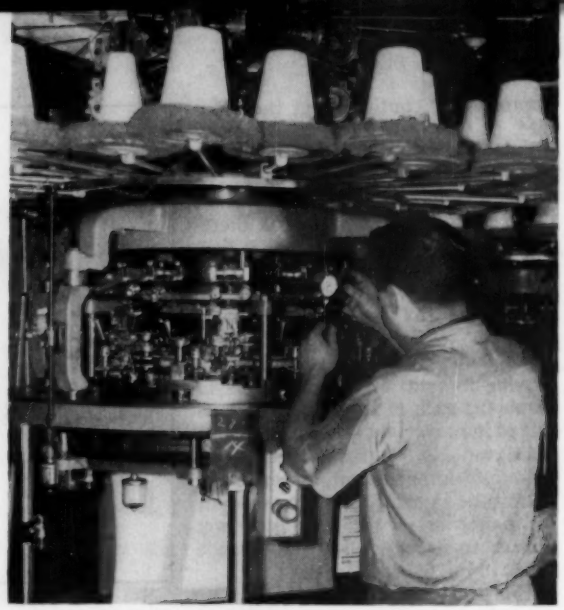
3. To Check One Mill Against Another

An organization that operates more than one mill is always faced with the problem of comparing one operation with another. The problem is always complicated by the fact that the two mills operate under different circumstances and usually on different products.

These measurements will give a precise comparison of any two mills in the fundamental function of improving energy use, regardless of products, location, size, physical layout, etc. Both mills use electric energy and manual energy, and the improvement of each is measured.



CONE DEVICES are placed above the Ban-Lon yarn to keep the yarn under control. Sheepskin pads under the cones keep the yarn from snagging.



COMPENSATORS to help feed the yarn to the needles are checked by Lawrence Havsy with a tension meter so that all feeds are set to the same tension.

New Techniques To Knit BAN-LON SWEATERS—

—are used by Havsy Knitted Sportswear Corp. to make beautiful products. Problems in manufacture that have been successfully approached include—

- **Knitting even stitches**
- **Reducing pull threads**
- **Keeping oil off the fabric**

SWEATERS MADE FROM BAN-LON YARNS require some special techniques to knit topnotch products. Havsy Knitted Sportswear Corp., Brooklyn, N. Y., has conquered most problems in knitting these yarns and is making beautiful sweaters from them. The mill is now producing some interlock sweaters made from solution-dyed Ban-Lon.

The machines used to knit the 70/2 Ban-Lon are 16½-cut Jacquard TAI machines. They have 12 feeds each on 30-in.-dia. cylinders that rotate at 14 rpm. to knit about 70 garment lengths per 8-hr. shift.

Compensators Are Used

To help keep the stitches even, Kidde compensators are used on all feeds. The compensators help to feed the yarn to the needles at an even flow.

The compensators are fixed one above the other in the yarn path above the yarn stand on the tension ring. Two ends of yarn are fed to the needles in the rib cuff, and the compensators that control these extra yarns are arranged above the other compensators.

A tension meter is used on alternate weeks to keep the compensators adjusted, and the meter is used when the stitch is reset. The compensators are adjusted while yarn is pulled over the meter from the cone so that all feeds are adjusted to the same tension.

Sheepskin pads are placed under each yarn cone with the fur side up to keep the yarn from snagging under the cone. The cone holders have been enlarged to take the pads.

Yarn Is Closely Controlled

Yarn porcelains are supported in the end of small plastic cones to help control the yarn as it leaves the cone. The plastic cones, which are thread bobbins with the spindle cut off, are placed above and below the normal porcelain position. All machines and all feeds are threaded exactly alike to further aid in keeping the stitches level.

Each garment length is separated with a three-ply nylon sewing thread. This thread sits in a plastic jar so that it is closely controlled and easily checked.

Pull threads have been largely overcome by (1) careful handling and (2) a keen awareness by all workers of the problem. Hand cream is provided to all employees to help keep their hands smooth. Containers that hold the fabric are lined with polyethylene sheets to protect against picks.

Fabric falls from the machine onto linoleum laid on the

CUTTING is done with a circular knife after the bodies and sleeves have been laid up to a height of 18 pieces. The sweaters are then processd in 1-doz. lots.

LOOPING is done with two ends of Ban-Lon yarn taken from the same merge the bodies were knitted from. Needle lines in the neck rib help the operator.

floor. Cloth wrapped around the take-up rolls gives added tension so necessary when Ban-Lon is knitted.

Oil Is Kept From the Fabric

To keep oil from the fabric, the cylinders are not lubricated, although the dial needles are oiled three times each shift. Screws on the bottom ring have been fitted with leakproof washers to keep oil from seeping on the fabric. Machines are constantly cleaned; so no excess oil accumulates on the machine.

Stainless-steel control cards are used to control the changes on the machine. These cards are made from 0.004-in. steel, and the ends are crimped and riveted together. These cards are punched on a die press, and they have lasted several years without replacement.

Havsy has worked out a solution to the problem of smashes when the control lever that operates the low-butt cam has not been replaced after needles have been changed. A simple switch on the cam control shaft that is wired to the stop-motion circuit must be depressed before the machine will start.

A card is attached to each machine to record the number of sweaters the machine produced each shift and the number of sweaters the machine has to knit from the order. The card also serves as a record of the behavior of the machine; so the knitter can keep up to date with the machine's activities on the previous shift.

Good Lighting Aids Inspection

To provide the best lighting for good examination of the fabric, strip lighting is arranged down the alley and also between the machines. An 18-in. fluorescent lamp is screwed to the machine base on each side of the fabric. The knitters examine the fabric regularly for faults so that several pieces are examined in each dozen sweaters.

A counter on the timing chain is moved to zero when a new lot is started. About 30 sweater lengths are removed from the machine at one time after the separating thread has been removed. The sweaters are then placed in bags to be sent away for scouring.

Strapping and collars are knitted on Dubied 10- and 12-cut machines. A two-spindle Leesonia winder is used to unwind fabric where sweaters are to be mock fashioned. This method makes sure that the yarn matches the sweater.

After the fabric has been scoured, the draw threads are removed to separate the garment lengths and the pieces are steamed on a frame and set to the correct size. Setup girls then examine the pieces for pulls, holes, and other damages. Faults are turned to the side of the garment, where they are cut out.

Bodies and sleeves are laid up 18 high on boards and passed to the cutting table, where patterns are marked and cut out with a circular knife. Bundles are assembled in 1-doz. lots for sewing.

The first sewing operation is done on a Merrow machine, where the shoulders, side seams, and sleeves are completed. The necks on classic-type sweaters are looped on 15-point Sotco machines.

To help the looper operator match the necks, needles are left out on the Dubied machine that knits the necks and the needle lines are matched up with the shoulder seams. The cotton running-on thread is pulled back on each dozen garments to leave a neat, strong neck.

Two ends of 70/2 Ban-Lon from the same merge used to knit the body fabric are used for looping, sewing, and mock fashioning. This latter operation is done on a blind-stitch machine that uses a guide arm to put the mock-fashion marks on both sides of the arm holes.

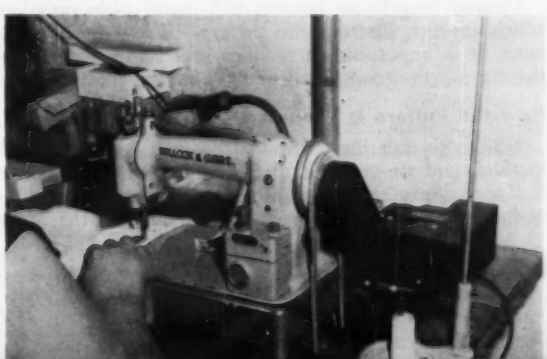
Buttons Are Fluorescent Marked

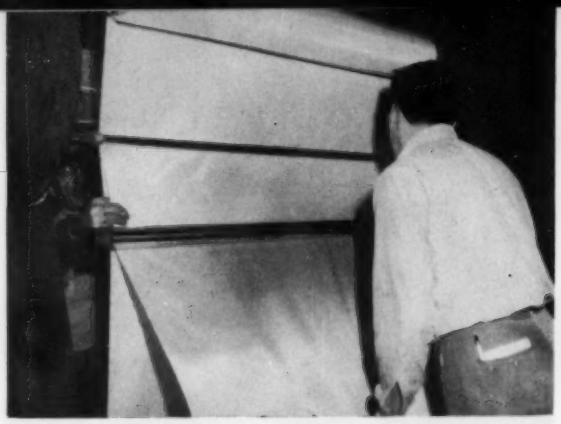
Nylon ribbon 1 in. wide is sewed on coat fronts, and size tags are sewed in the side seams. A Glow-Mark machine is used to mark the buttons and buttonholes with a fluorescent chalk. The sweaters are folded so that both marks are made together to get an exact match.

An infrared light is used on the Reece buttonhole machines to illuminate the fluorescent marks. Three buttons are sewed to the coat sweaters to hold them together for

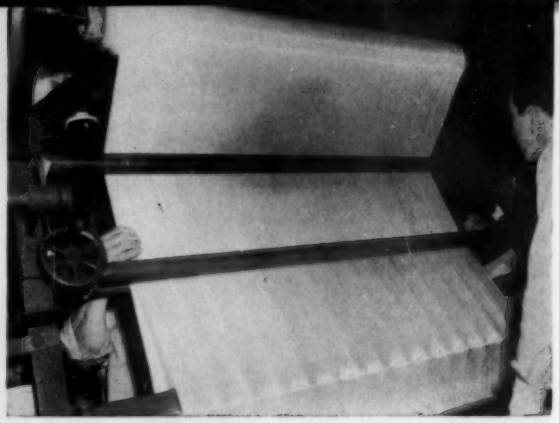
CONTINUED ON PAGE 228

CHAIN-STITCH MACHINE to sew on labels has been fitted with a device that lifts the needle from the sweater when the machine stops to save the operator's time.





MATCHING THE PIECES is the first step in getting ready to produce good bar moire. Two halves of one cut are batched together while the operators align and work the fabric to keep filling parallel.



TO TRACE A PATTERN, the goods are pulled under considerable tension over a serrated board, which distorts the filling locally. The fabric is rebatched double and is then ready to be put through the moire calender.

How Newburgh Produces MOIRE FINISHES

Newburgh Moire Co., Inc., New York City, is one of the few firms in the country producing the three principal types of moire today. Moire is a surface effect; and to produce perfect patterns, it is necessary to—

- **Start with a suitable fabric**
- **Dye and finish it with care**
- **Apply considerable skill in the moire process**

PRODUCING CLEARLY DEFINED, BRIGHT MOIRE PATTERNS on fabrics requires a combination of the right materials and much skill.

The character of the fabric itself determines whether or not it will be suitable for moiréing. The principal characteristic is the weave: it should have a pronounced filling-thread effect, such as is seen in failles, some taffetas, and bengalines.

Moiré got a big boost when the acetate fibers hit the market because fabrics made from acetate take a beautiful moiré and are much more resistant to water spotting than silk fabrics or cotton fabrics. Resistance to water spotting is now considerably increased by applying water-repellent resin finishes to cottons.

The second most important factor to the moiré producer is the way the fabric has been handled in dyeing and finishing. Fabric going into bar moiré should not be subjected to uneven tensions lengthwise or dried in such a way as to leave floppy, loose selvages.

Uneven lengthwise tension will cause pick variation, which in turn destroys the pattern. If the selvages are loose, it is impossible to produce satisfactory patterns at the edges of the goods, particularly in the bar-moiré process.

How the Pattern Is Produced

Newburgh uses the traditional bar method, the scratch method, and its own patented development, the Holterhoff method, to get various moiré patterns on fabric. One of the earliest moirés, going back 200 years, was the Moiré Francaise, produced by locally distorting the filling of the fabric in a series of vertical stripes across the width of the goods. This pattern is now generally called bar moiré.

To get what is called a match on bar moiré, one piece of fabric is first cut in two and each half is carefully rolled up on a shell. The two pieces are then placed on a machine equipped with two let-offs provided with adjustable brake blocks, usually made of wood.

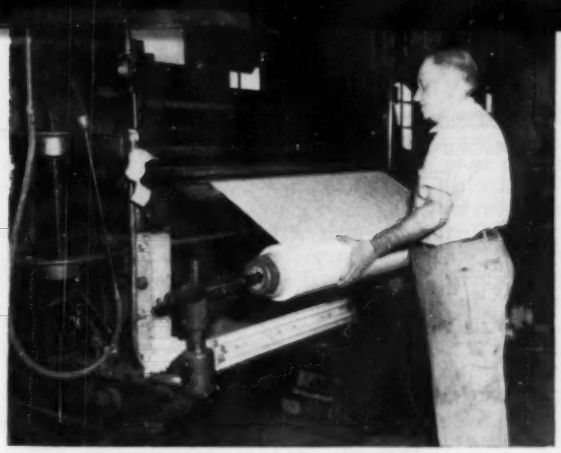
The ends of both pieces are led up from the let-offs through guide bars and past a bank of lights; then the ends are secured to the batching shell by a wooden key.

It is most important that the ends are securely fastened to the shell so that there will be no slippage of the pieces past each other in subsequent operations.

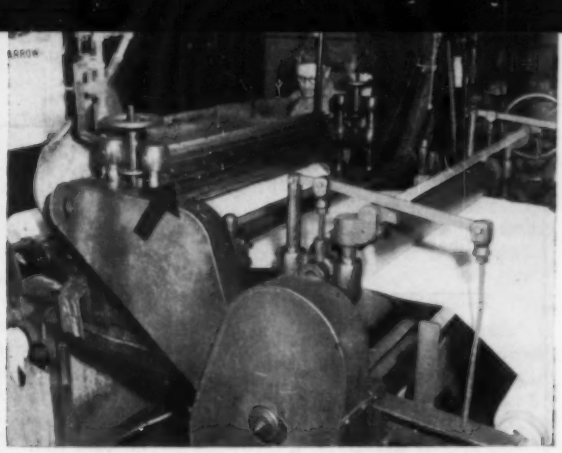
After a secure start is made, two operators watch the goods carefully as they pass in front of the bank of lights. One operator helps keep selvages aligned; the other applies manual pressure locally to the cloth so that a minimum of patterns appear in the transmitted light as the cloth moves up to the batching roll. Actually, the operators at this stage try to line up the filling threads of each cut so that they are perfectly parallel.

If the threads are parallel, no light-and-shadow patterns will show up as the light passes through the fabric.

Tracing the pattern is the next step, performed on a similar machine set up differently. The aligned cuts, now batched on one roll, are led between closely spaced guide rolls and are split over the tracing tool. The tracing tool is a serrated board with the serrations spaced to give the



HEAT AND PRESSURE, supplied by the polished gas-fired rolls of the moire calender, produce the high lights characteristic of moire. Calendering follows all methods of producing a moire pattern.



SCRATCH MOIRE is produced by distorting the damp fabric over a rubber roll with a raised pattern. Beater bars (arrow) revolving at high speed shift the threads in areas stretched over the raised pattern.

desired number of lines or rows of moiré pattern.

Considerable tension is put on the let-off bar so that the filling is distorted as it passes over the projections cut in the tool. The pieces are rejoined after passing over the tool and are rebatched on one roll.

Finally, the traced pieces are put through a moiré calender built with two highly polished hollow steel rolls. The rolls are gas-fired to a temperature of 350 to 400° F. and exert 8 to 10 tons of pressure on the goods as they pass through.

The operation is a slow one—4 to 5 yds. per min.—to allow time for a slight plasticization of the fiber. The time element is also important in producing good moiré on cotton or silk.

After the pattern is set by the calendering operation, the moiréd goods are wound off onto separate shells for examination and tubing.

How Scratch Moire Is Produced

To get patterns representing objects such as trees, geometrical shapes, and figures of different types, the scratch process is used.

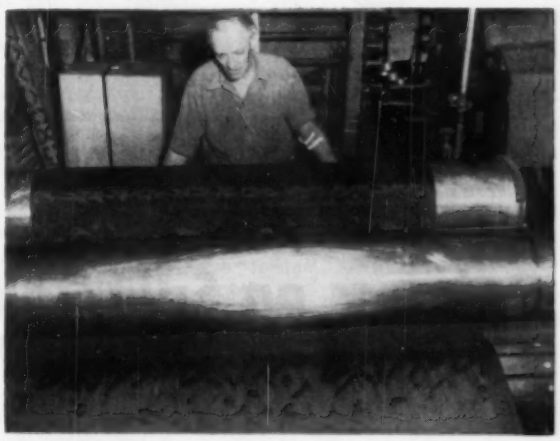
The desired pattern is first molded in high relief on a rubber-surfaced roll. The dampened fabric is led over the pattern roll under tension; and the surface, which is stretched over the relief pattern, is scratched by a series of brass blades that are counterrotated rapidly in contact with the fabric.

Great care is necessary in this operation. The brass blades must be perfectly true across the face of the goods, and each blade must be of exactly the same height to get an even distortion.

The scratched piece is then mated with its twin on the batcher and run through the calender. Moiré produced in this way shows a slight difference in sharpness and luster between the scratched piece and its mate. The advantage of the process is the variety of patterns that can be produced.

The danger of damage to the fabric is greater than in the bar-moiré process, and the variation in moiré between the scratched piece and its mate requires the cutter to lay up these pieces separately. The process cannot be used on light fabrics made of acetate for fear of damage. Also, there must be good penetration of dye or the scratched surfaces will show serious color variation.

Back in the late 1940's, August Holterhoff developed a method capable of producing a wide variety of patterns, including over-all effects that eliminate the disadvantages of the scratch-moiré process. The Holterhoff method



HOLTERHOFF PROCESS uses a patterned rubber or wood roll. The patterned area is moistened and transfers its moisture locally to the fabric, which is locally distorted as the fabric is pulled over a heated stationary drum.

depends on local dampening of the fabric followed by distorting the wet areas as the goods pass over a heated stationary cylinder. The distortion is set by a final pass over a revolving hot cylinder.

The fabric is then ready to be rolled up with its mate and put through the moiré calendar. Depending on the effect that is wanted, the matching piece may have been locally distorted or left plain. If it is left untouched, a mirror image of the distorted-piece pattern will be impressed on the plain piece, with none of the sacrifice of luster and clarity that is common to scratch moiré.

Very interesting effects are created by putting two pieces through the Holterhoff tracer and impressing a different pattern on each piece. When the pieces are calendered together, completely nonrepeating over-all patterns are produced.

The process lends itself well to the production of moiré on light fabrics such as tissue failles that will not stand the rigorous beating action of the scratch method. Another advantage is that the problem of matching the filling to the companion piece is virtually eliminated. Good moiré can be produced by the Holterhoff method even when there is considerable variation in pickage between pieces.

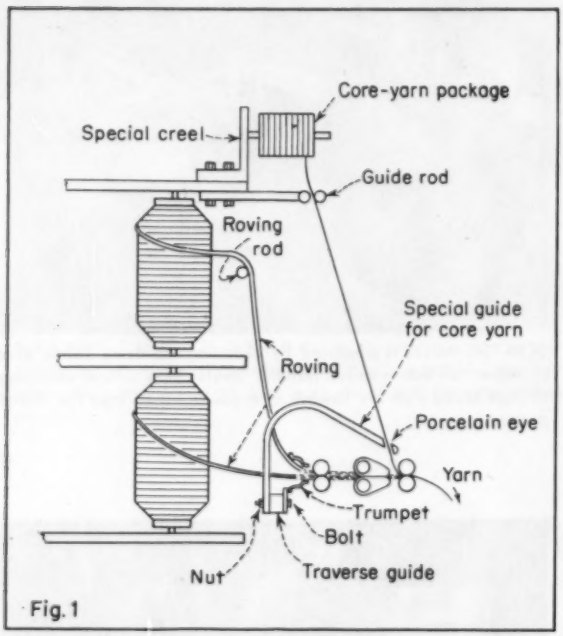


Fig. 1

CORE YARN is fed from an auxiliary creel to the front rolls through a special guide.

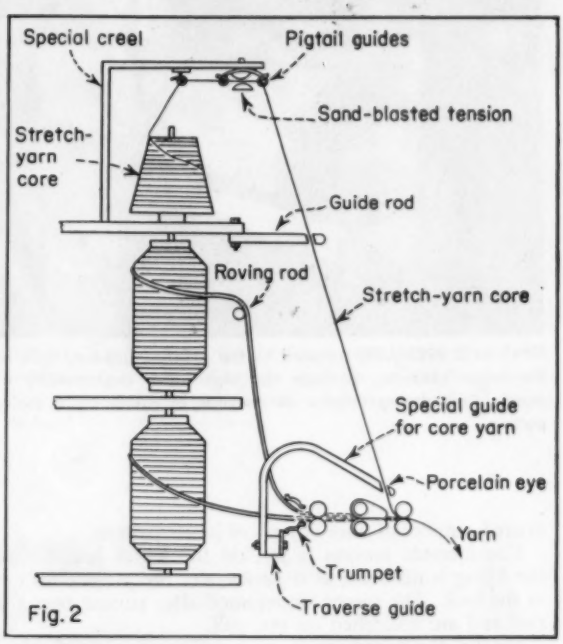


Fig. 2

STRETCH YARN is fed from a cone through a sand-blast tension and special guides.

Pointers on Spinning NOVELTY YARNS

Many novelty yarns can be made at the spinning frame with only minor mechanical changes. Here are some tips that may help you in spinning—

- **Mock-twist yarn**
- **Core yarn**
- **Blended-stock yarn**
- **Combination-spun stretch yarn**

By GEORGE B. PEELER

WITH MARKETS BECOMING MORE COMPETITIVE and staple goods getting harder to sell, many textile mills are looking for something different to manufacture. Some type of novelty yarn or novelty weave may be the answer to these mills' problems.

Many fabrics can be pepped up and their sales increased by using novelty yarn in place of conventional warp or filling. It is interesting to see what the right novelty yarn can do if used as filling in a sheeting, for example, or even if used in a blue-denim warp.

Yarn Falls Into Three Categories

To make novelty yarn, it is not always necessary to use twisters or special equipment. A wide variety of novelty yarns, which fall broadly into three categories, can be made directly at the spinning frame.

The first category includes yarn that can be spun on ordinary spinning frames without special equipment, such as a clutch gear, and with regular drafting, such as Casablancas, Duo-Roth, or the older conventional systems. These frames, except for some of the older models, require only minor modifications.

Typical yarns produced without using a clutch gear are mock twist, core, roving blends, spiral, and stretch yarns.

The second category includes yarns spun on frames with special equipment, such as a slubbing or other attachment for changing the yarn diameter at different intervals. These attachments give an intermittent feed through the use of clutch gears, sprockets, and chains.

Yarns produced on frames equipped with a slubbing attachment include slub, splice slub, Himalaya, and numerous variations of each.

The third category consists of twisted yarns, such as spiral-twist slub, gimp, seed, cover, spot, and ratiné. These yarns also are spun on frames equipped with an intermittent feed.

Any Fiber Can Be Used

Any spinnable fiber can be used to make novelty yarns. However, the staple length for slub yarns must not exceed the distance between roll centers. The best effects are usually obtained by using a staple at least ½ in. shorter than the distance between roll centers.

Here are some suggestions that may be helpful to you in spinning novelty yarn on present equipment with a minimum of mechanical changes.

Mock-twist yarn. This yarn is made by spinning from double roving in the creel where one of the rovings is one color and the other is a different color or where one roving is made of fiber with a different dye index from the other. The two rovings produce contrasting colors either as the yarn is spun or when it is cross dyed.

An example of this type of yarn is a yarn spun from double roving where one of the rovings is stock-dyed red cotton and the other is bleached white cotton roving. The same effect would be produced if one roving were rayon staple and the other acetate staple and the two were cross dyed.

When two such rovings are spun into one yarn, a spiral stripe or candy-stick effect is produced in the yarn. If the rovings are the same size, the yarn will have about 50% of each color showing on its face.

By varying the roving sizes, more or less color can be thrown on the face of the yarn, according to the effect desired. For example, a red 3-hk. roving spun into 15s mock-twist yarn along with a white 2-hk. roving would have approximately 33⅓% of the red stock on its face and 66⅔% white stock.

This combination gives a predominantly white yarn with a narrow red spiral stripe. If the combination were reversed, a predominantly red yarn would be produced with a narrow white spiral effect.

Colors Are Not Limited

It is not necessary to limit mock-twist yarn to two colors since it is very easy to use three colors or even four colors to produce different effects.

In making mock-twist yarn, it is generally possible to use standard speeds, drafts, and twists. These factors, however, will vary from machine to machine, from fiber to fiber, and from plant to plant.

When you are using two different colors of roving, creel all roving of one color in the top part of the creel and all of the other color in the bottom. This arrangement makes it easy for the operator to watch her work, and it prevents color mixtures.

Interesting effects can be obtained in different kinds of fabrics by using different kinds, sizes, and colors of mock-twist yarn; and very often new markets are the result.

Core yarn. This yarn is made by spinning fibers around a continuous center or core. The center may be either a spun yarn or a continuous-filament yarn. The core adds strength to the yarn being spun, whereas the cover fiber by itself may produce a tender yarn. Also, the core can give a different appearance to the surface of the yarn.

Generally, core yarn is fed from a spool or cone attached to the spinning frame as illustrated in Fig. 1. In this instance, the core package is on top of the creel and the roving is in the bottom of the creel. The core runs through a special guide, which is necessary to keep the core-yarn fibers and the roving fibers aligned as they are delivered into the bite of the front roll.

In this case, the core yarn is shown running under the front roll. It is also possible to run the core yarn between the two aprons if you are using an apron-type drafting system and if the core is continuous filament. The slick filament slips between the aprons without too much difficulty. A spun core going between the aprons, however, may cause trouble in spinning quality yarn and may damage the apron.

Direction of Twist Is Important

In spinning core yarn, the drafts, twists, and speeds are governed by what is desired in the end product. The direction of the twist of the core in relation to the twist of the finished yarn is a factor that cannot be ignored. An excessive amount of twist in the core tends to weaken rather than strengthen the finished yarn. Also, extra twist gives the yarn a crepe or kinky effect.

In some instances, a Z-twist yarn with excessive twist can be used for the core of an S-twist finished yarn. When the Z-twist core is twisted S, some of the twist comes out in spinning to give a special effect.

If the core twist and the finished-yarn twist are to be in the same direction, then it is better to use a core yarn with a very low twist where strength is desirable. The twist-on-twist arrangement gives a crepe or kinky effect in the yarn. Continuous-filament synthetics yarns used for the core can be obtained from the manufacturer with very little or no twist.

Select Travelers Carefully

The traveler is very important in making core yarn. Too heavy a traveler will cause skin-backs and give the yarn a ragged appearance; a traveler that is too light may produce kinks in the yarn as it is spun. The kind of traveler used can definitely affect the appearance of the final product, its breaking strength, and ends down.

For some yarns, a regular traveler is desirable; for others, the half-round traveler gives better results. For best results, run tests on travelers for each yarn.

Blended yarns. These yarns are made from dyed fibers blended to give color contrast. Blends, as such, are not made at the spinning frame. However, after the fibers are blended, the yarn is spun on a spinning frame. Some blended yarns are classified as novelty yarns.

The fiber blends are made either in the opening room or on blending pickers or at drawing frames. The blended fibers should give a good cross-dye effect or should be predyed before blending. The percentage of each color or type of fiber in the blend determines the appearance of the finished yarn.

In spinning yarn from different blends, the speeds, drafts, and twists depend upon the spinnability of the fibers. In some cases, blends do not spin as well as the same fibers spin before blending. Here again it is necessary to consider travelers because some fibers have a tendency to load travelers and cause excessive ends down, slubs, gouts, and other imperfections.

Blends can be very profitable at times. In one instance, a small mill made a good profit by running a blend of 15% black wool and 85% cotton filling into a plain sheeting warp. The material was sold as shirting. Blends of colored fibers that give a cross-dye effect in the warp may turn out to be profitable if properly merchandised.

Combination-spun stretch yarn. Recent developments in novelty yarns include combination-spun stretch yarns made by using stretch yarn as a core. Several types of stretch yarn give excellent effects. Chadelon gives a different effect from Helanca yarn, for example, and makes an excellent sock with practically all the features

CONTINUED ON PAGE 210

BUILT-UP ROOF at the new finishing plant of Cone Mills Corp., Carlisle, S. C., has Foamglas blocks laid in hot tar. This insulation was covered with a four-ply built-up roofing material.

Modern Construction Methods Solve ROOFING PROBLEMS

• High humidity loads that cause excess condensation can be controlled only one way—in the roof construction itself. Here are the construction methods proved by Cone Mills in its older buildings and now used in its newest plant.

By J. DAN McCONNELL

THE OLDER TEXTILE PLANTS were universally built with wood framing and wood decking. The rudimentary humidification equipment seldom raised humidities to levels high enough to result in any structural trouble.

As machine speed became higher, process control more critical, and quality more important, better humidification and air-control equipment was installed.

Soon the levels of humidity in the processing areas were raised, particularly in weave rooms. Today many plants are operating in the range of 80% r.h. and at temperatures of 80 to 85° F.

Under these conditions, a difference in temperature of a very few degrees between a wall and atmosphere touching it causes condensation. This condensation is the same sort of sweating that occurs on the outside of a glass on a muggy summer day when liquid in the glass is cooled by ice cubes.

In a building, this dew-point temperature is critical because some of the hidden surfaces are below dew point. Therefore enough water is furnished to the adjacent structural members to deteriorate the structure by rotting.

In addition to the problem of sweating, high humidity and high

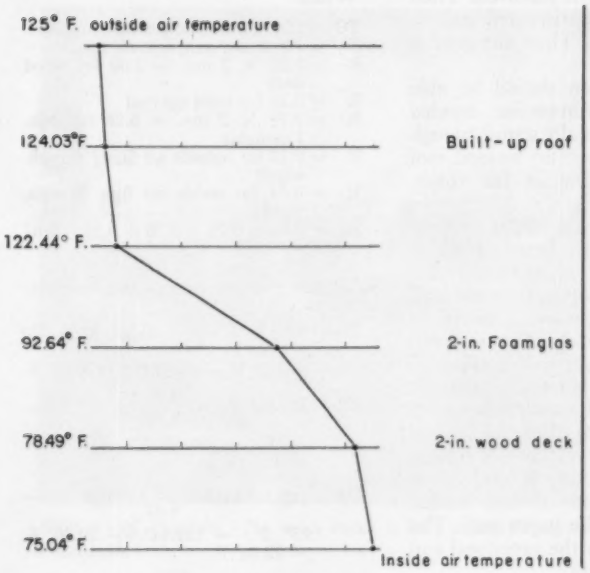


Fig. 1

TEMPERATURE CHANGE in a roof (Example No. 1) of 3/8-in. built-up roof, 2-in. Foamglas, and 2-in. wood deck is from 125° outside air temperature to 75.04° F. inside air temperature.

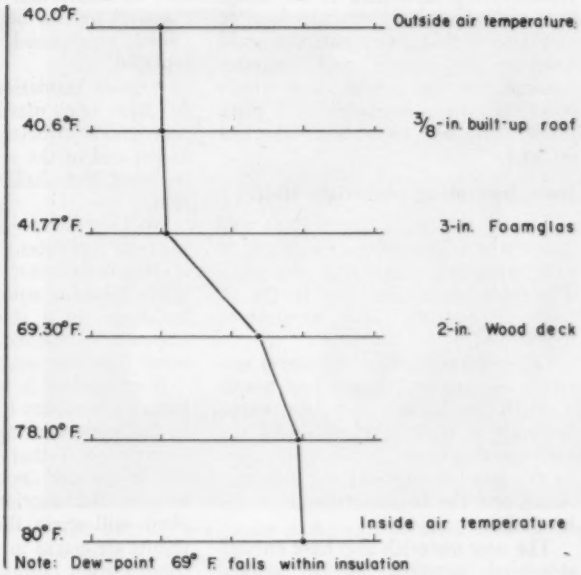


Fig. 2

TEMPERATURE CHANGE in a roof (Example No. 2) of 3/8-in. built-up roof, 3-in Foamglas, and 2-in. wood deck is from 40° F. outside air temperature to 80° F. inside air temperature.

temperature brought the need for keeping the sun's heat from coming through the roof of the building. A black roof is a good absorber of the sun's heat. And any heat load on the roof, if it is not insulated, goes right through and raises the temperature of the room.

Industry was then faced with two problems: (1) occupant comfort from a temperature rise from the sun load and (2) protecting the building by preventing rotting to make it last as long as possible.

Insulation Is the Basic Problem

The first efforts to answer these two problems were to use organic insulations. The action of the insulation, and the choice of its quantity and arrangement, depended on a predictable insulating factor.

This insulating factor is inherent in the type of material chosen; and it can be a variable because a damp piece of insulation becomes a good heat conductor rather than a heat insulator. Since insulators in general are nothing but poor conductors, thought had to be given to protecting the insulation from dampness.

An effort to solve this problem in roof insulation was to wrap up the insulation between what amounts to two roofs. One wrapping was the vapor-seal course. This arrangement is a built-up roofing assembly of two to three layers laid directly on the roof decking.

The layers are secured to the decking by short nails and washers and are bonded between the plies with hot tarry compounds. Then the insulation is bedded to the vapor course with the same hot tarry material. The normal built-up roofing with a topping of gravel or slag for weather protection was put on top.

Problems came up in this type of roofing since nails usually passed through the vapor seal and sometimes through the insulation. Anywhere a migrating bit of water vapor touched something below its dew point, condensation occurred and resulted in a wet spot.

Then sweating occurred on the bottom of the vapor-seal course from three causes: (1) the wet spot became big, (2) the insulation was a little thin, and (3) there was not much room for its coefficient to change by getting wet.

As a result of this sweating, the roof decking rotted from the top from condensation on the bottom surface of the vapor seal.

For many years, tongue-and-groove wood roof decking was thought to add its thickness to the total insulating value of the roof. Although this thinking is true for the sun load, it does not appear to be true for the action of water vapor in a highly humidified room. This vapor comes through the cracks between the boards and gets to the bottom of the vapor seal.

Such a condition has been observed in roofs that have been removed after many years of service. This condition is generally shown by the zinc-coated nails that go through the vapor seal. The nails have a white oxide coating built up well into the insulating material, which indicates sweat-water corrosion. Deck stains from water condensed on the nail are also often found.

Small Leaks Are Hard To Stop

Another fault with this kind of roof is through-metal construction. If the head of a nail is just under the outer built-up roof, the temperature of the nail is the same within a few degrees throughout its length. Therefore the nail becomes a cold area that is exposed to whatever atmosphere is present for all its length.

Another example of through-metal construction more easily seen is sweating bolts that extend all the way through a wall. The walls may be thick enough to give good insulation, but the bolt heads sweat long before the walls are wet.

An insulation that will take up moisture to reduce its coefficient can also be damaged by leaks coming in

from the top roof. One of the things that makes insulated roofs so hard to maintain is that water enters a small hole in the outside roof, migrates through the insulation, and finally leaks into the room below at a place often many feet away from where it entered.

New Insulating Materials Help

One of the major advances in roof construction has come as a result of new inorganic insulating materials. The materials are immune to the attack of bacteria and fungus-type organisms.

Other advantages of the newer materials are impact strength and tensile strength. In today's roofs, the entire assembly is held in place under the vacuums that occur during windstorms by the bond strength of the tarry materials and the tensile strength of the insulation.

The new materials also have enough structural strength to be worked over without damage from wheelbarrows or walking.

In roof design today, no matter what decking material is used, the accepted practice is to consider (1) the maximum humidity conditions that will occur in the enclosed space and (2) how much chance there is of the bottom of the vapor seal being exposed to the humid air.

Cost May Control Materials

The total insulating factors of the roof are then calculated so that the designer can be reasonably sure that the coldest place that will ever be exposed to room air can be kept slightly above the dew point of the atmosphere contained.

But in many instances, the insulation thickness required to guarantee such a temperature under the severest winter conditions that happen occasionally is not justifiable. Therefore it's necessary to choose some average-design temperature for outside conditions.

You must also realize that during some hours or some days the vapor seal will be wet on the bottom side, but there will be enough time for the water condensed to be dried out and returned to the space.

When roof cost is justified in terms of type or thickness, it is necessary to consider (1) the expense of construction, (2) the expense of finding and fixing a routine leak, (3) the factors of insulating-material decay from moisture pickup, and (4) the probable life of the insulating material.

In general, it's well to see the top of all roof decking at the end of the depreciated life of a building. Therefore it's common practice to make evaluating cuts through the roof before an entire roof is removed. Then the decking can be inspected and repaired, as required. Then the roof is replaced.

A good insulation should be able to take two maximum-life bonded roofs and be structurally sound enough at the end of the second bonded roof to leave the decking in fair condition.

Another factor that affects roof insulation has recently been added. It is the installation of overhead materials-handling equipment in old mill buildings. It is standard practice to suspend overhead handling equipment from the wood roof decking.

If equipment is not hung carefully, there's a tendency for materials moved by the equipment to place the load on a single plank that supports a hanger rod. If the roof decking is too light in weight, the motion of the loaded plank will strain the vapor seal. The results are cracks in the vapor seal and condensation failures.

Preservatives Brought Trouble

Modern wood roof decking is commonly treated with a salt-type preservative that is stable and difficult to leach out of the wood. But the continued presence of condensate, which is distilled water, in contact with salt-treated timber rusts the metal fastenings used in roof construction.

The structural trouble that follows is hidden and is difficult to locate. Sometimes a piece of overhead handling equipment pulls out of the roof. In such instances, the lag screw holding the hanger in place is so close to the vapor seal that the screw has gone below the dew-point temperature of the room atmosphere. This particular condition was observed in a weave room with 85% r.h. that has CZC-treated decking.

How To Figure Roofing Needed

To determine the temperature gradient through composite structures, use the following formula explained by two examples:

$$\text{Formula: } T1, T2, T3, \text{etc.} = \frac{R}{Rt}(TO\text{-}T)$$

Where:

T1, T2, T3, etc. = the temperature at various points on surfaces within the structure
TO = temperature outside
T = temperature inside
R = resistance of various materials composing the structure
Rt = total resistance of the structure

Example No. 1:

Find the temperature drop through each material in a roof composed of ⅜-in. built-up roof, 2-in. Foamglas, and 2-in. wood deck.

When:

TO = 125° F. air temperature outside
T = 75° F. air temperature inside
R = 1.25 × 2 ins. = 2.50 for wood deck
R = 0.28 for built-up roof
R = 2.78 × 2 ins. = 5.26 for 2-in. Foamglas
R = 0.17 for outside air film (15-mph. wind)
R = 0.61 for inside air film (0-mph. wind)
Rt = 2.50 + 0.28 + 5.26 + 0.17 + 0.61 = 0.882

Substitute these values in the formula:

$$T1 = 125° \text{ F.} - \frac{0.17}{8.82}(125° \text{ F.} - 75) = 125° \text{ F.} - 0.965° \text{ F.} = 124.03° \text{ F.}$$

$$T2 = 124.03° \text{ F.} - \frac{0.28}{8.82}(125° \text{ F.} - 75° \text{ F.}) = 124.03° \text{ F.} - 1.58° \text{ F.} = 122.44° \text{ F.}$$

$$T3 = 122.44° \text{ F.} - \frac{5.26}{8.82}(125° \text{ F.} - 75° \text{ F.}) = 122.44° \text{ F} - .29.80° \text{ F.} = 92.64° \text{ F.}$$

$$T4 = 92.64° \text{ F.} - \frac{2.50}{8.82}(125° \text{ F.} - 75° \text{ F.}) = 92.64° \text{ F.} - 14.15° \text{ F.} = 78.49° \text{ F.}$$

$$T5 = 78.49° \text{ F.} - \frac{0.61}{8.82}(125° \text{ F.} - - 75° \text{ F.}) = 78.49° \text{ F.} - 3.45° \text{ F.} = 75.04° \text{ F.}$$

Example No. 2:

Find the temperature drop through each material in a roof composed of ⅜-in. built-up roof, 3-in. Foamglas, and 2-in. wood deck.

When:

TO = 40° F. air temperature outside
T = 80° F. air temperature inside
RH = 70 % relative humidity inside
Dew point = 69° F. for 80° F. air with r.h. of 70%
R1 = 0.17 for outside air film (15-mph wind)
R2 = 0.33 for 3/8-in. built-up roof
R3 = 7.90 for 3-in. Foamglas
R4 = 2.50 for 2-in. wood deck
R5 = 0.61 for inside air film (0-mph. wind)
R+ = 0.17 + 0.33 + 7.90 + 2.50 + 0.61 = 11.51

Substitute these values in the formula:

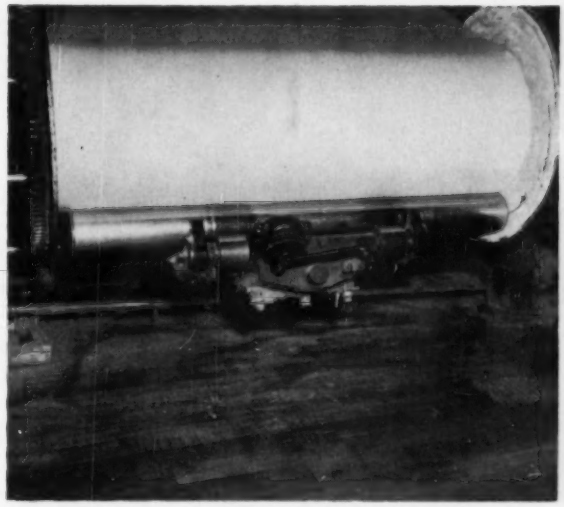
$$T1 = 40° \text{ F.} + \frac{0.17}{11.51}(80° \text{ F.} - 40° \text{ F.}) = 40° \text{ F.} + 0.6 = 40.6° \text{ F.}$$

$$T2 = 40.6° \text{ F.} + \frac{0.33}{11.51}(80° \text{ F.} - 40° \text{ F.}) = 40.6° \text{ F.} + 1.17° \text{ F.} = 41.77° \text{ F.}$$

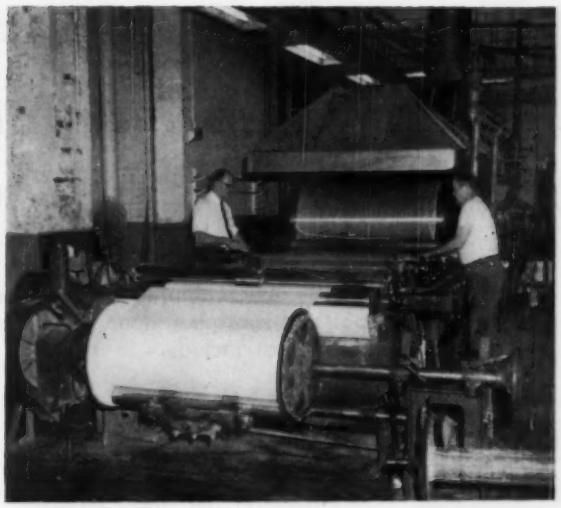
$$T3 = 41.77° \text{ F.} + \frac{7.90}{11.51}(80° \text{ F.} - 40° \text{ F.}) = 41.77° \text{ F.} + 27.53° \text{ F.} = 69.30° \text{ F.}$$

$$T4 = 69.30° \text{ F.} + \frac{2.50}{11.51}(80° \text{ F.} - 40° \text{ F.}) = 69.30° \text{ F.} + 8.80° \text{ F.} = 78.10° \text{ F.}$$

$$T5 = 78.10° \text{ F.} + \frac{0.61}{11.51}(80° \text{ F.} - 40° \text{ F.}) = 78.10° \text{ F.} + 1.90° \text{ F.} = 80.0° \text{ F.}$$



PNEUMATIC PRESSER ROLL helps make a firm, straight warp at Henderson.



LEASE STRINGS are placed in the yarn on every beam to keep the warps straight.

Slasher PRESSER ROLL Increases Beam Capacity 10%

At Henderson Cotton Mills, Henderson, N. C., an automatic presser roll helps pack 3,800 yds. of 20s yarn on a 26-in. beam. Other features of the slasher are—

- **Teflon-coated drying cans**
- **Centralized lubrication**
- **Delivery speed of 100 yds. per min.**

ONE MAN ON EACH SHIFT slashes all the warp yarn used at Henderson Cotton Mills, Henderson, N. C. The mill has 448 looms, half of which run at 195 ppm. and half at 175 ppm. The delivery speed of the slasher is 100 yds. per min.

The Cocker nine-can slasher has two six-beam creels. The creels are mounted on casters, and one is loaded while the slasher is running. When the beams are empty, the creel with full beams takes its place at the slasher and very little production time is lost for creeling.

Synthetic-rubber-covered squeeze rolls are used in the size box. The rolls weigh 600 lbs. each. The rolls are giving good service, and they have been buffed only once in more than three years' continuous use. Size pickup is about 13%. The size is held at a temperature of about 208° F. in the size box.

Some trouble was encountered with yarn sticking to the drying cans when the rubber rolls were first put in. The two back cans were coated with Teflon, and the trouble was eliminated. The Teflon coating is still smooth and unbroken after almost three years' wear.

Lease Strings for Each Warp

A pneumatic presser roll is used to pack the yarn firmly on the loom beam. About 10% more yarn is being put on each beam since the pneumatic roll has been installed. Yarn stretch is held at 1.1%. There have been no reports of selvages damaged by this roll.

Loom beams for the mill's X-2 looms hold 3,800 yds. of 20s yarn, 1,980 ends. These beams have 26-in.-dia. heads.

The 24-in. beams for the E-model looms hold 3,200 yds. of 20s yarn. Section beams have 30-in-dia. heads.

Lease strings are run in the warp on every beam to insure straight warps and selvages. An automatic moisture control is used.

The slasher is equipped with an Alemite Oil-Mist centralized-lubrication system. This system sprays oil on all the bearings as needed and eliminates hand lubrication. Since all the bearings are fully enclosed, the slasher as well as the yarn can be kept cleaner with the lubrication system.

Beams are handled with an electric hoist and monorail. The size is prepared, cooked, and stored in stainless-steel kettles. The finished size is held at a temperature of 220° F. in the storage kettle. A hopper mounted on tracks over the kettles and equipped with an automatic weighing device keeps the starch handy and ready for use.

How Excel Hosiery Mills Makes BOBBY SOCKS—

—with new equipment that includes Morpul machines that knit 1 doz. pairs of socks per hour. Problems in manufacture have been solved with ideas that include—

- **Caps for rubber-yarn control**
- **Oil jars to keep lint down**
- **Filters on the dryer exhaust**

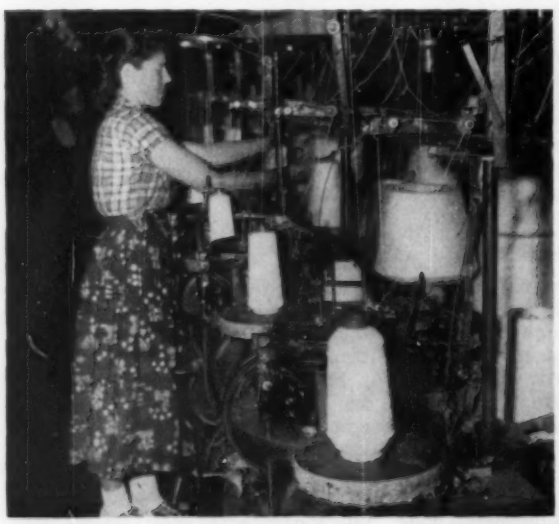
UNLIKE THE SALES OF MOST HOSIERY STYLES IN RECENT YEARS, the sales of bobby socks have been increasing. Several mills have installed new equipment to satisfy the demand for this fad of the teenager, which has become a staple item in many hosiery mills.

One such mill to install new equipment is Excel Hosiery Mills, Union, S. C., where the bobby socks are run along with the regular production of men's socks. Bobby-sock sizes run by Excel range from 8 to 11.

Machines Knit Socks Fast

Among the new-equipment items are 15 Scott & Williams machines, which have been rebuilt by Morris Speizman Co. to produce standard Morpul socks. These machines are built with 5-in. cylinders with 60 needles, and each machine knits 8 doz. pairs of socks per 8-hr. shift.

The needles are 10 gauge, and they knit four ends of 6s yarn in the cuff and two ends of the same yarn in the leg and foot. Heels and toes are spliced with 30-den. nylon or 12s cotton.



KNITTING bobby socks is fast work. One machine knits 1 doz. pairs of socks per hour. Rubber yarn is kept from snarling with a metal cap.

The 6s cotton yarn is spun with very low twist, but little trouble is experienced from lint that results from the low twist. Machines are blown down regularly with the air hose by the fixers, and the yarn is run over the wick of an oil jar that is kept filled with light needle oil. This oil picked up by the yarn also helps to lubricate the needles, sinkers, and porcelains.

The rubber yarn for the cuffs is creeled from a special stand at the front of the machine, where it can easily be watched. To keep the lively rubber yarn under control so that it does not get tangled around the porcelain, a round metal cap has been welded to the yarn-porcelain bracket.

How Neat Tops Are Made

To make a neat, clean top on the socks, Excel knits the make-up with two cotton yarns. Four courses of rubber are first laid in on alternate needles, and then four plain courses are knitted. This type of make-up also keeps the ends from pulling out when the socks are washed.

One knitter looks after 15 machines, and she inspects every sock as she turns it inside out for looping. The socks are then tied in bundles of 1 doz. pairs and passed to the looping stock room.

Looping production per operator is about 55 doz. pairs per day. The toes are looped with 16/3 cotton yarn.

All socks are inspected on wooden forms after looping, and faults are mended. Seconds and other off-standard goods are separated and tied to the bundle of perfect goods.

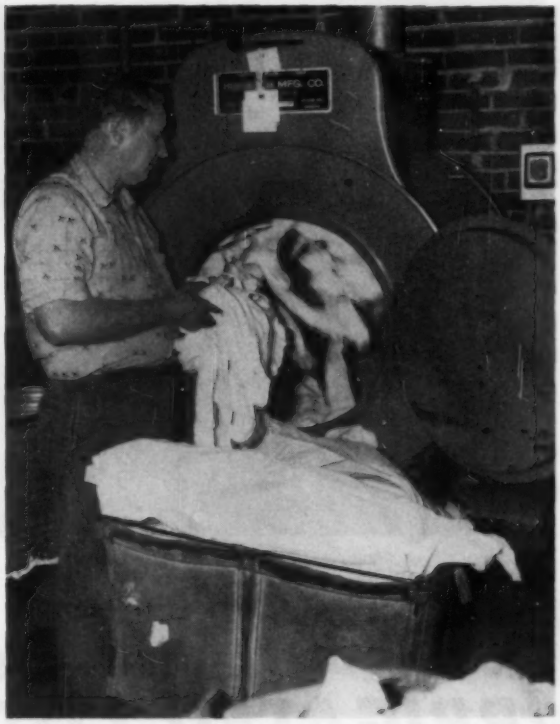
Most Socks Are Bleached

About 90% of the bobby socks made by Excel are bleached. The rest are vat-dyed blue, green, red, pink, and other pastel shades. Up to 100 doz. pairs are dyed at one time in 200-lb. rotary dyeing machines.

Up to 60 doz. pairs are bleached in the same machines at one time. The socks are sorted out for size and untied. Socks of the same size are put in one compartment of the machine, and each compartment is labeled.

A synthetic detergent is used to scour the socks for 30 mins. The socks are run cold for 30 mins. in a chlorine bleach and then for 30 mins. at 160° F. Sodium phosphate is added, and the goods are run for 15 mins.

BLEACHING, or dyeing, is done in 200-lb. rotary machines. The complete bleaching process takes about 2½ hrs. About 90% of bobby socks are bleached.



TUMBLE DRYING follows centrifugal extraction. The socks are dried for 15 mins. at 200° F. A filter on the exhaust pipe collects the loose lint.

The bath is dumped, and a softener is introduced and run for 15 mins. at 100° F. The goods are rinsed and a fluorescent dye added to give brightness to the finished socks.

Socks Are Tumble Dried

After a centrifugal extraction for 15 mins., the socks are tumble dried for 15 mins. at 200° F. to partly dry the socks and give them a soft hand. Loose lint from this operation was a problem because it was blown into the air outside the plant. The problem has been overcome with a filter fitted to the exhaust side of the pipe that removes the damp air from the tumble dryer.

Boarding is done on special forms screwed to the regular boarding forms. Pairing is done in the conventional manner, and transfers are applied with the aid of a hand iron. About 1,200 doz. pairs can be transferred each day by one girl.

The triple-roll cuffs are turned on a device that allows the operator to turn 175 doz. pairs per 8-hr. day. The device is fixed to the bench, and each sock is stretched on the form of the device.

A foot pedal is pressed by the operator to expand two saw-like blades that grip the sock and permit the sock cuffs to be turned over. The cuffs are turned over twice, and the foot pedal is released so the sock can easily be removed from the form.

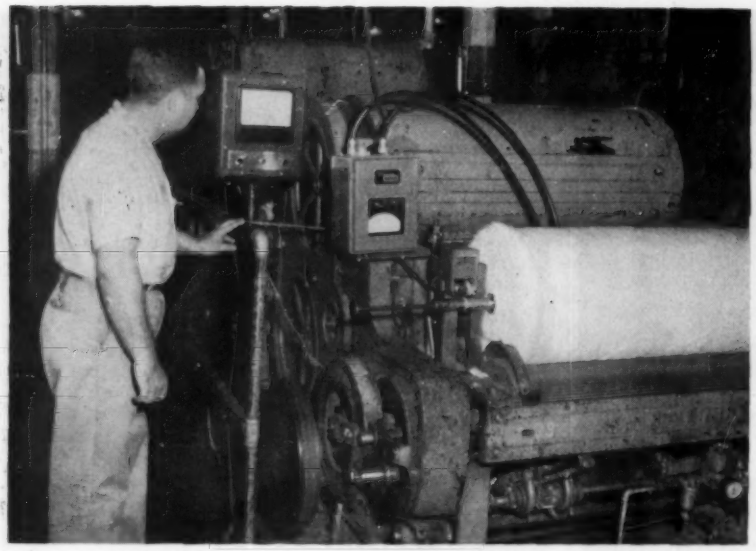
How Socks Are Packaged

Rider tickets are placed on the toes, and stickers are put on the cuffs. Four pairs of socks are wrapped with a band, and three lots are placed in a box.

Some bobby socks are packaged in polyethylene bags, which are punched so they can be hung on a rack. A stiff cardboard insert is placed behind these socks to make a neat package.

Bobby-sock production is seasonal. The season runs from about Sept. 1 to Feb. 13, but the annual output of about 75,000 doz. pairs has supplemented Excel's production of men's wool, cotton, and blended socks very well.

CUFFS of the triple-roll socks are turned on this device, which grips the sock while the cuff is turned back. The gripping blade is operated by foot pressure.



LAPMETERS and moisture-control instruments are used to keep evenness at 8%. Back beaters were slowed to 460 rpm. to reduce neps.

How Craftspun Cards and Spins IRRIGATED COTTON

Craftspun Yarns, Inc., Kings Mountain, N. C., recently completed a $750,000 consolidation and modernization program and put all of its equipment on California irrigated cotton. Results—

- **Yarn costs are down over 6¢ per lb.**
- **Yarn breaking strength is up 20%**
- **Waste figures are lower than average**

CRAFTSPUN YARNS, INC., Kings Mountain, N. C., a subsidiary of Scranton Lace Co., produces 16s to 40s yarn from 1⅛-in. Strict Low Middling California irrigated cotton. The yarn is about 20% stronger than similar yarn the mill previously made from equivalent-grade cotton from the Memphis area. This improvement is partly due to machinery modernization and partly to the stronger fibers of the irrigated cotton.

Here's how the irrigated stock is blended, carded, and spun—

How the Cotton Is Blended

Thirty bales of cotton are laid down in sequence according to Micronaire numbers that range from 3.7 to 4.9. After the bagging and ties are removed, dirty cotton is scraped off the sides of the bales.

Then an equal amount of cotton is removed from each bale and placed in the feeder hoppers. To make sure that the cotton is fed evenly, the tag describing the quality of each bale is hung on a board in the opening room; and when the bale runs out, the tag is dropped into a box nailed to the wall beneath the board. Then the tag from a new bale is put on the hook in place of the old one.

This careful blending produces a more-even and stronger yarn and eliminates spotty coloring.

The irrigated cotton is definitely neppier than the Memphis cotton formerly used, but Craftspun's customers understand the situation and are willing to accept a few extra neps in order to get yarn with extra-high breaking strength.

A typical waste report shows that Craftspun produces less waste than many mills running a comparable grade of Eastern cotton. Waste, including bagging and ties, totals only 10.93%.

One Man Runs Opening Room

At present, Craftspun has only one line of opening and cleaning equipment, which the mill plans to replace very soon with more-modern machinery.

The opening room is operated two shifts, and about 150 bales of cotton per week are processed. One man per shift runs the entire department.

Three single-process Saco-Lowell pickers produce a 13-oz., 60-yd. lap weighs 48 lbs. Total picker production is about 800 lbs. per hr.

Each picker has three beaters. The back porcupine beater runs 460 rpm., the middle three-blade beater 860 rpm., and the front Kirschner beater 975 rpm. Back fan speed is 780 rpm., and front fan speed is 875 rpm. The slow speed of the back beater reduces neps in the stock.

Rack controls on the pickers maintain pressure at 50 lbs.,

Craftspun Consolidates and Modernizes Two Old Mills

Since its organization in 1946, Craftspun Yarns, Inc., has spent over $750,000 in consolidating and modernizing two old mills into a single streamlined production unit.

The first step was to renovate the buildings and grounds. This phase included remodeling wash rooms and the office, installing fluorescent lighting, building a cafeteria, landscaping, and generally improving working and recreational facilities. Individual drives were installed on all machines except the cards.

The next step was to combine the two mills, which had a total of 19,000 old spindles, into one mill with 14,000 modernized spindles. This operation affected almost every piece of equipment in both mills.

Roving Is Replaced

Four-process roving was replaced with 10x5 long-draft frames. Old 6x4 Draper spoolers were eliminated and new 6x6 Abbott winders installed. The winders paid for themselves the first year they were in use.

Then 72 cards were moved into the same room, overhauled, aligned, and leveled in seven weeks by a special crew composed largely of mill personnel.

While the cards were being set up, spinning frames also were moved and changed over to long draft. Ball-bearing spindles and larger rings were added. Twister rings were increased in size so that 14 to 50% larger packages could be produced.

High-Speed Drawing Is Installed

Drawing frames were equipped with Ideal high-speed change-overs that are now running at 200 ft. per min. Eight drawing frames, operated by one man, produce as much stock as 20 frames formerly made.

The modernization and consolidation program resulted in reduction of total employees from 485 to 252. The cost of yarn production was cut more than 6¢ per lb., and yarn quality improved greatly.

and a moisture monitor is used to keep regain at 1¼%. Evenness averages 8% according to the Uster lapmeter.

Operating and Cleaning Schedule

The general operating and cleaning schedule for the opening and picking department is:

1. Pull out opening-room motes twice each shift and clean out mote bins at a specified hour each shift
2. Clean out screens and beaters and blow off evener section at the beginning of each shift
3. Clean under screen sections each shift
4. Blow off all pickers each shift and clean one picker with a mop
5. Blow down overhead at the beginning of each shift
6. Keep picker-room floor clean at all times
7. Straighten lap pins as they are put on the pickers
8. Reject laps if the indicator hand on the lapmeter varies one number from standard; return rejected laps to the opening room

Craftspun operates 72 cards that were recently overhauled, aligned, and leveled. A 60-grain sliver is put into 12x36-in. cans at 9 lbs. per hr.

High-speed carding was tried experimentally, but results were not satisfactory with the irrigated cotton. Present speeds are based on a cylinder speed of 165 rpm., lickerin speed 429 rpm., and flat speed 1¼ ins. per min.

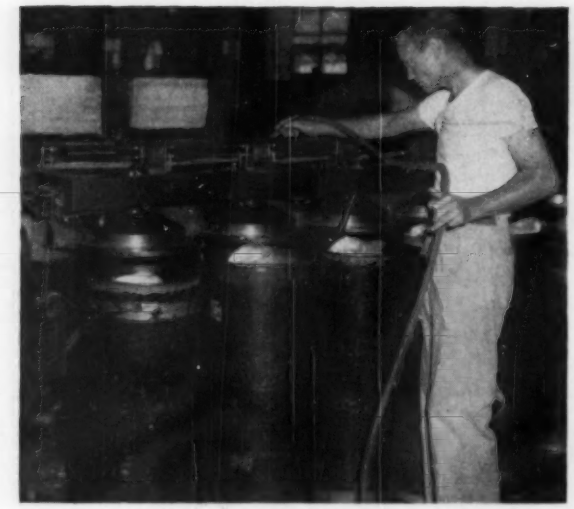
Cards Are Ground Carefully

Cards are ground for 4 hrs. every 11 days. Here is the grinding routine in 15 steps:

1. Stop the card and remove the remaining piece of lap
2. Strip the card very thoroughly
3. Run the card empty until all cotton is removed from the flats
4. Remove flat strips and all fly from under the lickerin and cylinder
5. Clean the card thoroughly and hook out between the sides of the frame and the doffer and cylinder; clean out all oil holes with a pointed wire and oil all slow-moving parts
6. Disassemble the coiler and clean and oil its gears; remove chokes from the calender gudgeons; check condition of cleaners and replace them if they are worn.

COTTON is laid down according to Micronaire numbers, and an equal amount of each number is blended from 30 bales.

CARDING is done at 9 lbs. per hr., with standard speeds and settings. Higher speeds were tried and found to be unsatisfactory.



DRAWING FRAMES, which run at 200 ft. per min., were changed from eight to six ends up. Frames are blown off at each creeling.

ROVING has an average evenness of 32%. Ends down run about four per 8 hrs. for all nine machines. One process is used.

7. Remove, check, and repair belts
8. Turn and raise the cylinder and doffer by hand and clean them with a bristle brush
9. Clean the other parts of the card
10. Put on the grinding rolls and take time to make sure that they do not touch the surface of the wires
11. Start the card and listen for sounds of rubbing; if rubbing can be heard, stop the card and locate the source of trouble
12. If no rubbing is heard, stop the card and set the grinding rolls at 0.005 in. on each side; be sure that the card comes to a full stop before making the setting
13. Start the card again; when it reaches operating speed, begin to set the rolls for grinding; start grinding the cylinder on the side opposite the driving band
14. Lower the stand a few thousandths of an inch at a time until a slight hissing sound is detected; then lower the opposite stand until the hissing there equals that on the other side
15. Continue to lower the roll gradually in this manner until a few scattered sparks are produced
16. Adjust the roll downward a little harder than you intend to leave it set so that you can back off upwards a fraction of a turn against the check nut. This action puts the strain on the belt upwards instead of toward the cylinder

Cards Must Be Kept Clean

It is extremely important that cards be kept clean when irrigated cotton is being run. The cleaning schedule for the cards is:

1. Clean front and back twice each shift at a specified hour
2. Clean doffer comb and top of calender-roll cleaners at each doff
3. For the places that cannot be reached with a mop, use a comber brush on one-third of the assigned cards
4. Take out fly waste once each shift at specified hours
5. Blow off cards each Friday on the first shift
6. Clean screens once each shift
7. Vacuum-strip only five cards at one time and take down flat strips before stripping
8. Pull fly waste from the front of each card Thursday on the third shift

Eight drawing frames with Ideal change-overs operate at 200 ft. per min. The frames, formerly eight ends up, were converted to six ends up to improve fiber control. At the same time, sliver weight was changed from 68 grains at the finisher drawing to 58 grains. Evenness, which had been ranging from 14 to 16%, dropped to 10% when the changes were made.

Drawing-frame clearers are picked, and coiler heads are wiped off at each doff. Frames are blown off at each creeling, and one-third of them are cleaned with a mop. A brush is used for places that cannot be reached with the mop.

How Roving Is Made

Nine 10x5 roving frames are used to make 1-, 1.40-, and 2-hk. roving. The 1-hk. roving, which weighs 1.26 lbs. per bobbin, is spun into 12s to 20s yarn; the 1.40-hk. roving, which weighs 1.28 lbs. per bobbin, is made into 24s to 30s yarn; and the 2-hk. roving, which weighs 1.16 lbs. per bobbin, is made into 36s to 40s yarn.

Draft for the 1-hk. roving is 6.5; for the 1.40-hk. roving, 10.53; and for the 2-hk. roving, 14.56. Doffing cycles for the three rovings are 1 hr., 1 hr. and 40 mins., and 4 hrs., respectively.

Spindle speed ranges from 713 to 716 rpm.; jack-shaft speed is from 400 to 440 rpm.; and front-roll speed is 146 rpm.

Evenness averages 32%, and ends down run about 4 per 8 hrs. for all nine machines.

Cleaning schedule for the roving frames is:

1. Pick top clearers as needed
2. Pick front underclearers on the doff nearest the middle of the shift
3. Lay up all flyers and clean back guides and weight wires on the first doff
4. Clean flyers each doff while the frames are stopped
5. Wipe carriage each doff
6. Clean top and bottom rolls on one frame each shift; pick spindles and wipe top of creel on this frame
7. Pick lint off front steel rolls each shift
8. Clean back and sides of creel on one frame each shift
9. Clean gear head and compound each Friday on specified frames
10. Clean under creels first week of each month

SPINNING-FRAME EFFICIENCY averages better than 96%, and each operator runs 12 sides. Three roll pickers are used.

PRECISION-WOUND YARN for lace is made on 48 six-spindle winders. Cones and tubes are wound on more-modern equipment.

11. Clean all heads and motors each shift

The spinning room has 55 frames. Fifteen of the machines are Whitin 288-spindle frames equipped with Casablancas long-draft and 2¾-in. rings. Traverse is 9 ins., and gauge is 3¼ ins.

The other 40 H&B frames have been changed over to the Roberts drafting system. These frames have 240 spindles each, 2-in. rings, and 3-in. gauge.

In spinning 30s single yarn, 0.210 lb. is put on the bobbins. Twist multiplier is 4.25, spindle speed 10,000 rpm., front-roll speed 133 rpm., draft 25, and doffing cycle 8 hrs. Break factor averages 2,300.

For 16s single yarn, twist multiplier is 4, spindle speed 10,000 rpm., front-roll speed 141 rpm., draft 16, and doffing cycle 5 hrs. Bobbins hold 0.313 lb. of yarn, which has a break factor of about 2,400.

Frame efficiency averages better than 96%. Modernization of the spinning frames and installation of Parks-Cramer overhead cleaners permitted work assignments to be increased.

Spinners now run 12 sides and do relatively little cleaning. Fixers were reduced from two to one per shift, doffers from six to four, and sweepers from three to two. Three roll pickers are used on the first shift only. Further adjustments in work assignments may be made when suction cleaning is installed on the spinning frames.

Spinning Duties Are Listed

The general operating and cleaning schedule for the spinning room is:

Spinners' duties—Put up all ends; pick clearer boards as needed; brush rails at specified hours; clean one-third of the back guides, weight wires, and back side of head end each day; clean front stands once daily; run out guides as needed; keep tops of skewers clean at all times; clean one-third of the ring rails once a shift; clean top and bottom creels once a week; and clean under creels the first week in each month

Roll pickers' duties—Pick all rolls and front stands daily; clean steel rolls, back stands, and traverse motion once a week

Doffers' duties—Take down bobbins at end of each shift on frames doffed; pick up bobbins dropped on the floor; clean motors once a shift with a brush in places that cannot be mopped; brush off rockers and heads once a shift at specified hours

Fixers' duties—Repair all minor breakdowns; clean off workbenches at the beginning of each shift; and check bobbin builds at all frames

Banders' duties—Keep bands and tapes running on spinning and twisting frames; assist fixer in general; help change rolls for buffing; oil all fast bearings at the beginning of each shift; oil middle bearings at 6 p.m.

Cones and Tubes Are Made

A total of 55 spoolers and winders are used by Craftspun. Seven 124-spindle Abbott spoolers were recently converted into five spoolers with 166 spindles each.

Three 100-spindle Foster winders produce a 30-oz., 5¾-in. Dytex tube; one 100-spindle Roto-Coner makes 8½-in. cones that weigh 4 lbs. each; and 48 6-spindle Universal winders produce precision wound 3-in. tubes of yarn for lace.

Production per shift is about 500 lbs. of two-ply 30s on the Foster winders and 700 lbs. of two-ply 16s on the Roto-Coner. The Universal winders produce about 350 lbs. per shift.

In the twisting department, larger rings permit the production of 4- and 6-oz. packages.

PLY YARN is twisted into 4- and 6-oz. packages. These frames were overhauled and equipped with 2¼- and 2¾-in. rings.

WORKLOADS are stabilized throughout the mill because peak loads are reduced and machines are running on a definite schedule of planned production.

West Coast Woollen Mills Uses New CONTROL METHODS

To stay active in a rapidly changing business, this mill has recently installed new equipment and methods to reduce downtime, raise production, and lower cost. The new methods cover—

- **Production planning**
- **Preventive maintenance**
- **Workload stabilization**
- **Departmental-cost breakdown**

THE MARKET FOR FANCY WOOLENS AND WORSTEDS for women's wear is subject to rapid changes in fashion. To stay in this business, a mill must remain versatile and give quick deliveries.

One such mill is West Coast Woollen Mills Ltd., Vancouver, B. C. To face the problems created by the changing markets, the mill has moved into a modern one-story building and has just completed a machinery-replacement program. New control methods have also been introduced to combat increased downtime, low efficiency, and high cost.

These controls, installed with the aid of Werner Textile Consultants and designed to improve methods and practices, cover four areas: (1) production planning, (2) preventive maintenance, (3) workload stabilization, and (4) departmental breakdown of costs.

Processing Is Planned Now

Delivery promises before the installation of the new methods were based on past experience and the number of orders on hand. Today, planning boards are set up for the various departments.

The factor that governed planning was the possible output from the various machines. Processing-time periods are now set up for the production-planning section, and a reasonably accurate period for processing is possible.

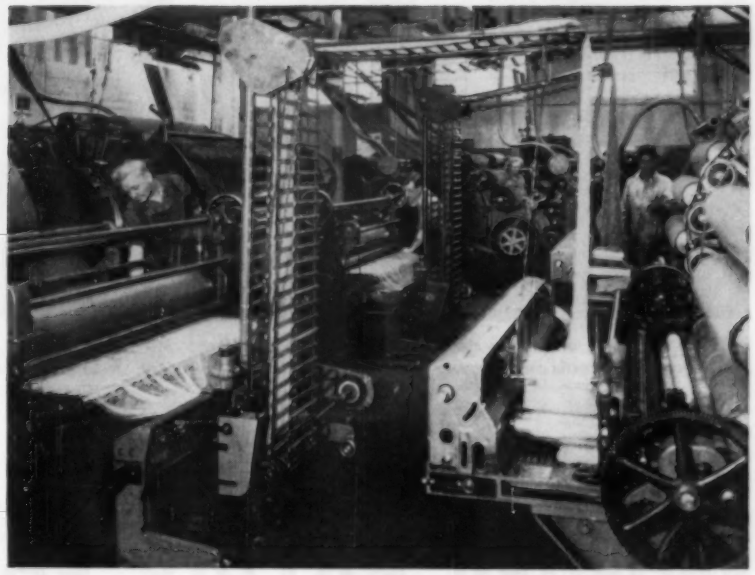
Joint responsibility between supervisors and the planning department was established. Because of the better control of individual departments, supervisors do better planning. Where unforseen circumstances threw planning off schedule, an incentive for general cooperation was introduced to overcome the trouble in subsequent departments.

A preventive-maintenance program was then established throughout the mill. This program put checking and overhauling schedules on a routine basis.

How Maintenance Is Controlled

The control department keeps the records for the entire preventive-maintenance program. Other duties of the control department include checking new-material quality, controlling goods in process, and checking the finished product.

A special maintenance crew is directly responsible to the mill superintendent, but the crew receives a weekly program from the control department. The head maintenance



PREVENTIVE-MAINTENANCE PROGRAM keeps cards and other equipment in first-class condition. A special maintenance crew does this job.

man then assumes the responsibility of getting the work done on time.

Checklists for each machine overhauled during the week are turned in to the control department so that part-replacement data may be entered in the records. If the maintenance crew falls behind the schedule, the control department immediately notifies the mill superintendent for corrective action to be taken.

Machines are now kept in first-class condition to insure their availability for production requirements. The work is more evenly distributed without affecting the normal workload.

When the machines were running to a definite schedule of planned production, workloads were established to a great extent. Upsetting factors such as resulted from peak loads were reduced.

Cost System Was Broken Down

Because of the increased variety of yarns and fabrics, the original cost system no longer provided a quick method of cost control. Costs were established for individual fabrics, but the system was not adequate for establishing departmental costs in relation to weekly production.

To make supervisors more cost conscious and to be responsible for costs in their department, the cost system was broken down according to the various departments. This system contributed to better teamwork between department heads.

A labor budget was set up. Factors in the cost system were broken down according to fixed and controllable factors. Daily production figures were tabulated, and the accumulated weekly figures were used to determine the unit cost per pound, per run, per yard, or per 1,000 picks. Ready comparisons could then be made of actual standards against budget standards.

Careful checks during processing, and weekly checks when production figures were submitted to the cost department, were established. Waste standards in the various departments were also set up when production figures were made.

Production Was Increased 20%

Benefits from the controls included the reduction of unnecessary downtime, increased machine speeds, quality improvements, and more take-home pay for operators. Production in the woolen section was increased 20%.

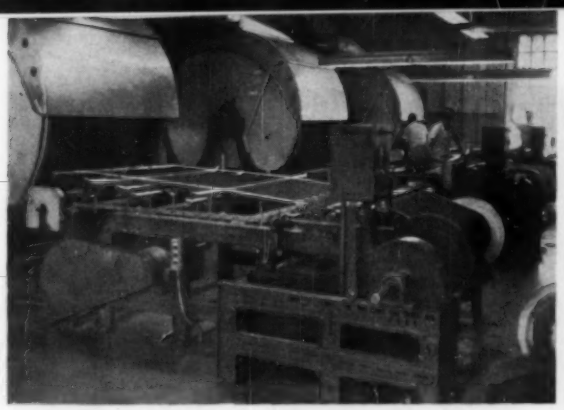
Part of the success of the new methods is a result of the efforts of management to explain the reasons for the change to the operators. A team spirit now exists and all workers are active participants in planning.

Maintenance Work Report
Pin Drafter

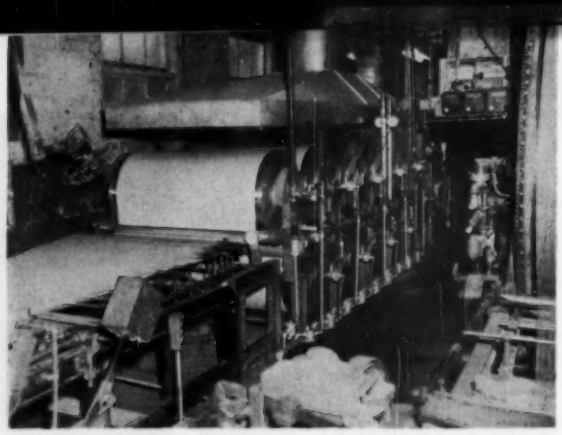
Item No.	Machine part	Inspections and work to be done	Condition Good	Fair	Bad	Work done
1	Creel guides	Smoothness, position, cleanliness	✓			
2	Creel stop motion	Good operation	✓			
3	Stop-motion guides	Smoothness	✓			
4	Feed rolls	General condition	✓			
5	Feed-roll bearings	Wear, lubrication	✓			
6	Conveyor aprons	Wear, cleanliness		✓		
7	Fallers	Cleanliness, wear, pin condition		✓		Replaced 12 bars
8	Faller screws	Lubrication, condition	✓			
9	Faller cams	Wear, timing	✓			
10	Front rolls	Cleanliness, setting, smoothness	✓			
11	Front-roll bearings	Wear, lubrication	✓			
12	Front-roll clearers	Felt condition, position			✓	Replaced felt
13	Faller stop motion	Good operation	✓			
14	Delivery stop motion	Good operation	✓			
15	Porcelain-coiler sliver guide	Wear, smoothness	✓			
16	Coiler complete	Good operation, align, and level	✓			
17	All gear covers	Condition, tightness	✓			
18	All gears	Lubrication, wear, missing teeth	✓			
19	Yardage clocks	Broken glass, fastness, key	✓			
20	Electrical control panel	Cleanliness	✓			
21	Lubricating system	Good operation, leakage		✓		Fixed 1 leak
22	Main drive and belts	Condition, bearing, wear	✓			

Date: 8/15/57
Machine make No.: W & S Quad No. 2
Department: Drawing
Fixer: [signature]

CHECKLISTS, such as this one, are returned to the control department when a machine is overhauled so that part-replacement data can be recorded.



DRYING CAPACITY of slashers depends on many variables, but production can be estimated closely.



MULTIPLE-CYLINDER SLASHER has increased capacity because of high steam pressure and the resulting high speed.

How To Evaluate SLASHER DRYING CAPACITY

• There are many factors to be considered when you are figuring the drying capacity of a slasher. But a close estimate can be made of normal drying capacities for average sets. With these average figures established, estimates can then be made for any standard set.

West Point Foundry & Machine Co. has worked out a useful table of the drying capacities of various slashers. Normal drying rates of a standard 54-in.-width cotton warp with 10 to 12% size pickup and 7½% moisture regain are used.

Many drying rates differ widely because the actual drying rates of a slasher depend on many factors. Among the things to be considered are:

- Yarn number
- Number of ends in the warp
- Kind of fibers
- Initial moisture content of the warp
- Size content and density
- Squeeze-roll pressures
- Mechanical condition of the cylinders
- Efficiency of drainage
- Efficiency of vapor exhaust system
- Moisture content of finished warp
- Warp width
- Atmospheric conditions

As a general rule, the drying rates (pounds per hour) of light sets are lower than the normal rates, and heavy sets are higher. Light sets can be slashed at relatively high speeds and still record a low drying rate in pounds per hour.

The accompanying table gives only normal drying rates of average sets. Maximum rates obtained can be much

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Slasher Drying Rates

Type of slasher	Contact length (ft.)	Thread length (ft.)	Steam pressure (Psi.)	Drying rate (lbs. per hr.)
Two cylinders (one 7-ft. and one 5-ft.) without rolls	25.8	52.0	12	315
Two cylinders (one 7-ft. and one 5-ft.) with rolls	31.4	67.5	12	375
Three cylinders (one 7-ft. and two 5-ft.)	44.0	70.0	12	485
Three cylinders (two 7-ft. and one 5-ft.)	53.0	86.5	12	620
Multiple cylinders (nine 30-in.)	44.8	60.3	35	1,200
Multiple cylinders (11 30-in.)	55.5	73.8	35	1,550
Four cylinders (15-ft.)	53	100.0	22	1,000
Air-Dri Three 10,000-cu-ft.-per-min. fans Steam coil	48.0	54.5	125	1,000
Air-Dri Two 10,000-cu.-ft.-per-min. fans Steam coil	32.0	38.5	125	750

Solvents Speed Up VIGOUREUX PRINTING

Good color fixation in a short steaming period can be achieved in vigoureux printing when a method developed in Australia is used. The new process is based on—

- **Dissolving the colors in a solvent**
- **Raising the steaming pressure**

By THE WOOL BUREAU, Dept. of Science and Technology

BY USING BENZYL ALCOHOL as a dye solvent and increasing the pressure at which the printed sliver is steamed, vigoureux printers can get 95% color fixation in 5 to 20 mins.

Premetallized dyes work particularly well in this method, and many acid colors can also be used. Some of the chrome dyes that are less alcohol-soluble can be worked by this procedure if a leveling agent is included in the dye paste.

Benzyl alcohol was chosen as the most suitable all-around solvent after many trials with it and other materials. Phenyl cellosolve is a somewhat better solvent but is more expensive; butyl cellosolve and butyl alcohol are also effective but somewhat unpleasant to use.

By shaking up a small amount of dye and benzyl alcohol in a test tube, the solubility of the dye can be checked quickly. It is interesting to note that the properties of a dye that make it washfast also make it soluble in benzyl alcohol. The chrome colors in general are not sufficiently soluble in benzyl alcohol to produce the excellent results shown with acid or premetallized dyes but can be used if necessary for certain effects.

How Pastes Are Made

The dye and thickener are mixed together and added to the previously mixed liquids. Typical formulations for acid, premetallized, and chrome colors are given in Table 1.

After printing, it is advisable to wrap the sliver bundles with wet covers to avoid drying out the print paste before steaming. If the paste becomes dry, there will be a considerable loss of color value; and adding hygroscopic agents such as glycerine to the print paste will not overcome the effects of drying out.

Pressure Cuts Steaming Time

Steaming the printed sliver at more than atmospheric pressure speeds up color fixation. The steam must be saturated—a normal condition in most plants—and it is important that the print paste contain a volatile acid to avoid yellowing and weakening of the wool during steaming. Table 2 gives typical steaming times for three types of dyes at various pressures.

The steaming chamber should be thoroughly heated before any actual steaming of printed sliver takes place. Because steaming is a batch operation and the warming-up period could take as long as 10 to 15 mins., there is little need to reach pressures much over 3 to 5 psi. for light

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Table 1—Composition of Printing Paste

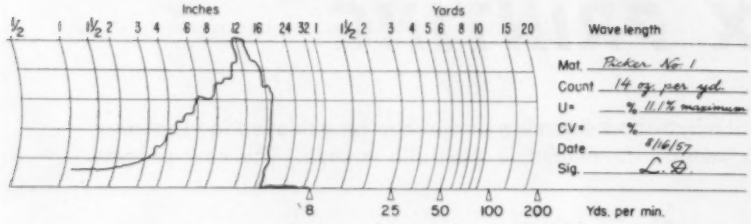
Ingredients	For 1 liter	For 10 gals.	Remarks
For Premetallized or Acid Dyes			
Dye	20 to 80 grams	2 to 8 lbs.	
Thickener (Solvitose H4M)	40 to 50 grams	4 to 5 lbs.	Or appropriate quantity of other thickening agent
Acetic acid (100%)	30 c.c.	2½ pints	
Benzyl alcohol	50 to 100 c.c.	½ to 1 gal.	Quantity depends on amount of dye
Anionic wetting agent	5 to 10 c.c.	½ to 1 lb.	Optional
Water	850 c.c.	8½ gals.	
Print Pastes for Chrome Dyes			
Dye	20 to 80 grams	2 to 8 lbs.	
Thickener (Solvitose H4M)	40 to 50 grams	4 to 5 lbs.	Or appropriate quantity of other thickening agent
Chromium fluoride	30 to 60 grams	3 to 6 lbs.	Quantities refer to solid
Acetic acid (100%)	30 c.c.	2½ pints	
Benzyl alcohol	30 c.c.	2½ pints	
Leveling agent	5 c.c.	8 oz.	
Water	850 c.c.	8½ gals.	

TYPICAL PRINT PASTES for three classes of dyes that can be printed by the method described are given above.

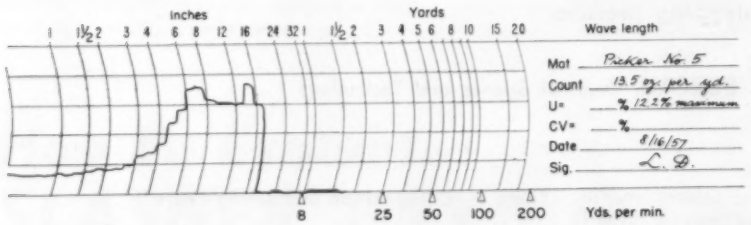
Table 2—Steaming Time for Dye Fixation

Pressure Psi.	Temperature °F.	Temperature °C.	Time (mins.) for Premetallized dyes 20 to 30 grams per l.	Time (mins.) for Acid dyes 80 grams per l. (black)	Time (mins.) for Chrome dyes 20 to 80 grams per l.
0	212	100	40 to 50	100 to 120	.....
3	221	105	12	35	60 to 90
5	227	108	10	25	40 to 50
7	232	111	8	20	30 to 40
10	239	115	6	12	20 to 30
15	250	121	4	7	10 to 15
20	259	126	3	4	5 to 10
30	274	135	2	2	2 to 3

APPROXIMATE STEAMING TIMES to get 95% color fixation are listed above. Individual dyes may require more or less time to get the same results.



THIS PATTERN shows that something may be wrong with the second calender roll, the draw rolls in the finisher section, or the gear in the drive to the draw rolls.



CALENDER ROLLS appear to be the major cause of the defects shown by this pattern; but it is possible that lap rolls, sprockets, and draw rolls also need attention.

PICKER-LAP VARIATION
Is Traced to Calender Rolls

- A large cotton mill was having trouble with its picker laps and called in a trouble shooter to see if he could find out what was wrong.
- The trouble shooter put some laps through a series of quality tests and analyzed the results.
- Here's what he found out—

By W. A. THOMASON, JR., Consulting Editor, TEXTILE WORLD

AN EVALUATION OF ONE LAP EACH from Nos. 1 and 5 warp pickers on an electronic lap tester indicates that both laps have short-term variation that is slightly higher than satisfactory. The average maximum variation of the lap from No. 1 picker is 11.1%; from the No. 5 picker, it is 12.2%.

A lap is satisfactory if the maximum variation is 10% or less, and it is possible for this variation to be as low as 6%. If patterns are in the lap, however, it is not satisfactory at any percent variation.

The excessive short-term variation appears to be caused by mechanical defects. If these defects are corrected, the maximum variation should be reduced to less than 10%. High short-term variation in picker laps results directly in high variation in yarn size.

Patterns Are Analyzed

The defects shown by the spectrograph are:

No. 1 picker—The 16-in. pattern is almost surely caused by the second calender roll, and the 11-in. pattern is probably caused by the draw rolls at the finisher-section screens. The 9- to 10-in. pattern could be caused by the draw rolls or the 14-tooth gear in the drive to the draw rolls or by a double repeat from the top calender roll.

No. 5 picker—The 16-in. pattern is almost surely caused by the second calender roll, and the 15-in. pattern is caused by the third calender roll; but it is possible that the 15-in. pattern is a double pattern from the lap rolls or the lap-roll sprockets. Lap rolls badly out of balance can cause this condition. The 11-in. pattern is more likely caused by the draw rolls.

The possible cause of trouble at the various rolls could be that (1) the rolls themselves are bent, (2) the journals on the ends of the rolls are bent, (3) the rolls are worn excessively or have been turned down and are causing the gears to bottom, or (4) the gears or rolls are eccentric.

Another possible cause of trouble at the calender rolls is wear on the outside of the bearings. Over a period of time, the bearing sides become worn so that they are somewhat rounded and tend to rock in the slots at the picker sides. To correct this condition, the bearing sides could be ground off square and the slots in the picker sides bushed to give a tight fit.

To reduce short-term variation not

CONTINUED ON PAGE 216

How To Look After TRICOT Presser, Guide, and Needle Bars

These three important components of the tricot machine need lots of attention to knit first-grade fabrics. Here are some tips on—

- **Filing presser bars**
- **Changing needles**
- **Removing guide bars**

By JOHN A. WERTMAN

PRESSER BARS ON TRICOT MACHINES are usually made of fibre, and they become grooved when they have been in operation for some time. The usual presser may run for several months before it needs attention, but the actual press surface should be kept clear at all times.

Make a careful check of the presser bar at the end of each warp to determine when and if reconditioning is required. If the grooves are not worn too deep, they can be eliminated without removing the bar from the machine.

To do this job successfully, make a tool from a block of 6x1x1-in. smooth wood. Cover the wood with fine emery cloth.

Fasten the emery cloth tight to the block with glue or thumbtacks. Make the joint on one side of the block to leave three sides of the block to brush along the presser edge.

How To Smooth the Presser

When you smooth the presser, exert all pressure against the presser bar and not the sinker bar, or the sinkers may be damaged. This operation will usually take the grooves out of the presser bar and present a fresh surface to the needle beard.

The press position may have to be adjusted after reconditioning. Don't change the angle of the presser against the needle beard if the press position is changed.

If the grooves are worn deep, remove the presser from the machine for reconditioning. Place one end of the presser in a vise on a work bench with the needle-contact surface up. Support the other end of the presser on a box or a block to keep the presser in a level position.

Use a 10-in. mill file to smooth the presser bar. File the bar lengthwise along the presser surface. Make the first strokes with the file from the right side of the bar to the left side, and make the next strokes in the opposite direction.

Don't File From Back to Front

Don't file the presser edge from the back of the bar to the front because this practice leads to an uneven surface of the presser edge. Such a surface requires a harder press to avoid such faults as press-offs, tuck stitches, and cut threads. The harder press then increases needle breakage.

Take care to maintain the original thickness of the presser and the taper at the point of contact with the needle beards.

After filing, the presser will possibly need readjusting. Provisions are made for advancing and retarding the presser and for raising and lowering the presser surface. After repeated filings, a presser may not work suitably in any location and a new presser must be installed.

Guide bars are probably mishandled more than any other bar on the tricot machine. When the front bar or bars are removed to enter warps, the job is generally done by two men.

Three men should do this job. One man should support the bar at the center because the guide bar bows at the center if not supported. Leads then become displaced, and the screws that hold the leads work loose.

Clean and Grease Guide Bars

While the guide bars are off the machine, they should be cleaned and greased. Check the bearing points for wear at this time. The guide bars must oscillate freely, but no extra play can be allowed.

Remove the spring and connecting rod and work the bar to the right and left to insure a free but snug action. Do this job on all guide bars.

Guide bars should be checked for split, cut, or grooved guides when the warps are out. Replacing the faulty guides is the only solution to this problem.

Front-guide-bar leads are sometimes removed to replace threads in the back guide bar. When the lead is replaced, make sure that it conforms with other parts of the bar. Check every 12 ins. of the bar to see that the reset lead matches these points.

If the machine is left idle for some time, apply a thin coat of needle oil to the guides. This job can be done with the warp in and will prolong the life of the guide.

New Needles May Cause Streaks

With normal use, needles wear out evenly; but with changes in yarn size, quality, and fabrics, more-than-average needle breakage is experienced. After some time, needle replacements may cause vertical streaks in the fabric.

Several inches of needles are sometimes replaced to correct these streaks, but the only real solution is to reneedle the whole bar. The cost of this job is often a deterrent, but when you consider that a 168-in. machine knitting 400 courses per minute makes about 1,250 sq. yds. of cloth per 24-hr. day, the cost is small.

Incorrect methods of changing needles cause damage. Here's a successful way to replace leaded needles:

Turn the machine so that the guide bars have just traveled through the needles from the front to the back position. Lock the machine so that it cannot be started accidentally.

Remove the plate covering the damaged needle and gently pry the bottom of the needle lead with a plier handle.

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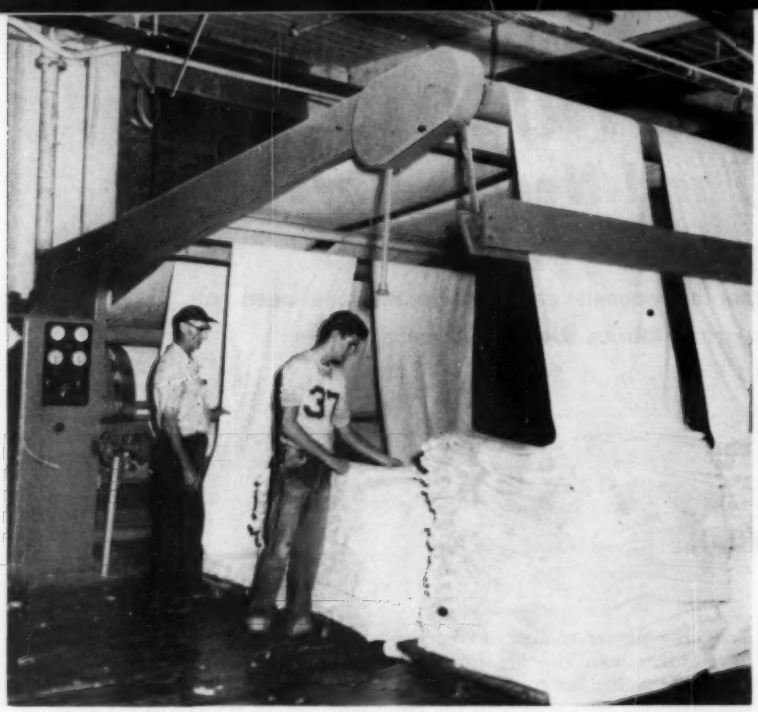


NEW NAPPERS simultaneously nap two strands of 45-in. cloth.

NEW NAPPERS Speed Production At Buck Creek Cotton Mills

Four new high-speed nappers produce as much yardage as 14 old machines at Buck Creek Cotton Mills, Siluria, Ala. Other advantages are—

- **Better-quality goods**
- **Push-button operation**
- **Less cleaning**
- **Fewer runs**

NEW NAPPERS AT BUCK CREEK COTTON MILLS are 400% more efficient than the old machines recently discarded.

Four new Gessner machines installed during the last 12 months run 32 yds. per min. and nap double strands of cloth. Napping area is 90 ins. wide.

The 12 old nappers ran 15 yds. per min. and required nine operators and three fixers for three shifts. With the new machines, three operators and two fixers are used on three shifts.

Four Runs Are Made

An average of four runs is made on the new nappers, compared with 12 runs on the old nappers. Cloth is not reversed on the new machines, and a thicker and more-uniform nap is produced.

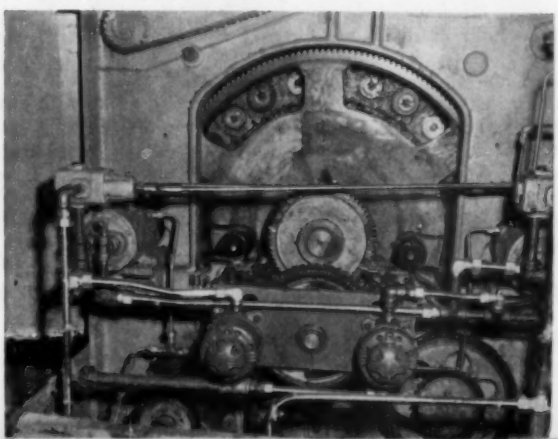
Push-button controls start and stop the new machines and adjust pile-roll pressure and cloth tension automatically. Belts, tightened by guesswork, were used to operate the old machines; and pulleys were changed to reverse the cloth.

Downtime for grinding is cut to a minimum by keeping a spare set of freshly ground rolls on a portable rack. The rolls can be replaced in 2 hrs. Formerly, the machines were shut down 24 hrs. for grinding.

Working parts and gearing are enclosed on the new machines, which cuts cleaning and maintenance to a minimum. The nappers are blown off on the week end, and very little other cleaning is required.

Buck Creek now naps an average of 350,000 yds. of cloth per week. Production will be increased when additional nappers are installed.

GEARING and hydraulic-pressure systems require little space and are totally enclosed.



How 11 Mills Break In New SPINNING RINGS

- To find out whether a definite pattern exists for breaking in new spinning rings, TEXTILE WORLD asked 11 representative mills to give their experience.
- There is a general pattern that most mills follow, but the details vary greatly.
- Here is what we found out—

THERE ARE MANY DIFFERENT METHODS of breaking in new spinning rings, but most mills follow this general pattern:

1. Spindle and traveler speeds are reduced 25 to 30% from normal at the beginning of the break-in period.
2. A traveler four to six numbers lighter than standard is used at the beginning of the break-in period. Traveler weight is gradually increased along with frame speed until standard weight and speed are reached.
3. Travelers are changed at gradually increasing intervals as the rings are broken in. However, some mills change travelers "as needed" or when they turn blue. Factors that influence traveler-changing schedules include ring size, frame speeds, and yarn number.

Differences of opinion were reported as to methods of lubricating new rings. Some mills wipe off surplus oil with a dry, clean cloth and use no further lubrication. Two mills lubricate new rings with coconut oil, and two others use a mixture of castor oil and flowers of sulfur.

11 Cotton Mills Report

Here are reports from 11 representative cotton mills on how they break in new spinning rings:

Mill 1—"At the beginning of the break-in period, we use the lightest traveler possible for 38s yarn and we reduce traveler speed to 4,000 ft. per min. Our normal 10,000-rpm. spindle speed is cut to 8,500 rpm.

"Travelers are changed every hour for the first 8 hrs. and every 4 hrs. for the second 8 hrs. After 16 hrs., travelers are changed twice a week.

"Traveler weight is gradually increased until we are using a 9-0 traveler. Speed is increased as the traveler weight is increased until travelers are running 5,100 ft. per min.

"From six months to a year is required to break in rings."

Mill 2—"For 10s to 40s yarn, we lubricate travelers with coconut oil and change them every doff for 24 hrs. After that period, we change travelers as they wear out.

"We use lighter-weight travelers than normal during the break-in period and gradually increase the weight as the rings become smooth. At the beginning of the period, spindle speed is reduced to 4,500 rpm. and then gradually increased to 10,000 rpm."

Travelers Are Changed as Needed

Mill 3—"For 15s warp, traveler speed is slowed to 4,500 ft. per min. while the rings are being broken in. Travelers are changed as they wear out for the first 240 hrs., and then they are changed on schedule every 120 hrs.

"After 240 hrs., traveler speed is increased to 5,400 ft. per min. Spindle speed, which was reduced during the break-in period, is raised to 9,200 rpm."

Mill 4—"The 3-in. rings on our new frames are broken in as follows:

"On coarse numbers (14s) spun with a front-roll speed of 195 rpm., a 1½-circle split-back traveler is changed every half-hour for 4 hrs., once each hour for the next 8 hrs., every 4 hrs. for the next 16 hrs., and every 24 hrs. for two weeks.

"The frames are then put on a 48-hr. traveler-changing schedule for six months. When this period is ended, we expect the travelers to run several hundred hours.

"Our tests are not yet finished; so we don't know what actual traveler life will be; but we are sure it will be much greater than average."

Special Lubricant Is Used

Mill 5—"We break in spinning rings by lubricating them with a mixture consisting of 1 lb. of castor oil, ⅛ lb. flowers of sulfur, and ⅛ lb. graphite.

"The rings are lubricated with the mixture after each doff for the first 64 hrs. and once a week for the next 15 weeks. The rings are wiped carefully after each traveler change to remove abrasive deposits, and then they are relubricated.

"This treatment produces a smooth, hard polish and pays off in longer traveler life and better yarn quality."

Mill 6—"We wipe new rings with a clean, dry rag and then grease them with a mixture of castor oil and sulfur. Spindle oil can be used in place of castor oil. The rings are greased once a day for a week.

"For 9s yarn, we use No. 10 travelers that run 5,675 ft. per min. Rings are broken in according to this traveler-changing schedule:

Traveler change	Running time (hrs.)
1	½
2	1
3	2
4	4
5 to 14	8
15 to 20	16
21 to 22	32
23	48
24	64

"After the 64-hr. interval is reached, we stay on a 64-hr. changing schedule indefinitely."

Mill 7—"We wipe new rings with a clean, dry rag and start them with a light traveler. For 30s warp, we use a 7-0 traveler in the beginning instead of our normal 1-0 traveler.

"Travelers are changed during the first 24-hr. period when they turn blue. After 24 hrs., the rings are again wiped off with a clean rag; and for the next two weeks, travelers are changed every 24 hours.

"After this period, travelers are changed every two days for two weeks; and for the next two weeks, they are changed every three days.

"By the end of six weeks, we start changing travelers once a week. This

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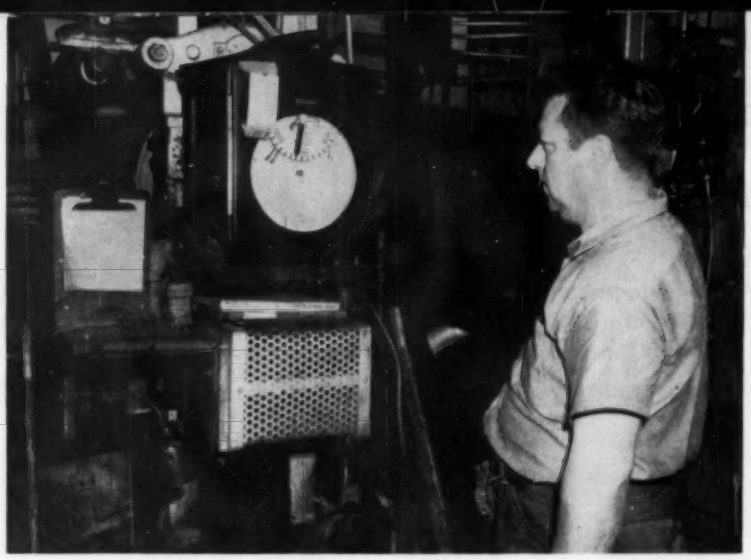

TEMPERATURE AND DYEBATH POTENTIAL are recorded on this Foxboro instrument. The large scale gives a quick appraisal of the potential of the dyebath.

Standard's DYEBATH CONTROL Cuts Costs, Improves Quality

Standard Bleachery at Carlton Hill, N. J., uses the Marhen system of reduction-potential control to replace art with science in—

- **Maintaining even shades on long runs**
- **Cutting chemical costs**

THE APPLICATION OF SCIENTIFIC CONTROL PRINCIPLES to vat-dyebath control has replaced educated guesswork on Standard Bleachery's vat-dyeing range.

About two years ago, the plant installed the Marhen system of dyebath-potential control. Developed by General Dyestuff Co. personnel, the method relies upon an exchange in the electron values of the reducing substances in the dyebath.

The basic reaction for an alkali-sodium hydrosulfite bath is:

$$4\,OH^- + S_2O_4^{=} \rightarrow 2\,SO_3 + 2\,H_2O + 2e^-$$

e represents electrons, and these free electrons are the activating principle of the system. The sulfur atom in sodium hydrosulfite has a charge of +3, but the sulfur atom in sodium sulfite has a charge of +4; so that free electrons are available to develop an electrical potential in the solution. It is the availability of these electrons that indicates when a reducing bath is in proper condition for the reduction of the vat color.

To translate bath conditions into visible form and provide a continuous record of the conditions, a platinum and a glass electrode is immersed in the bath and connected to a Foxboro instrument. The instrument indicates bath potential in millivolts and also provides a record of the potential on a chart. Bath temperature is also recorded by a separate pen hooked to

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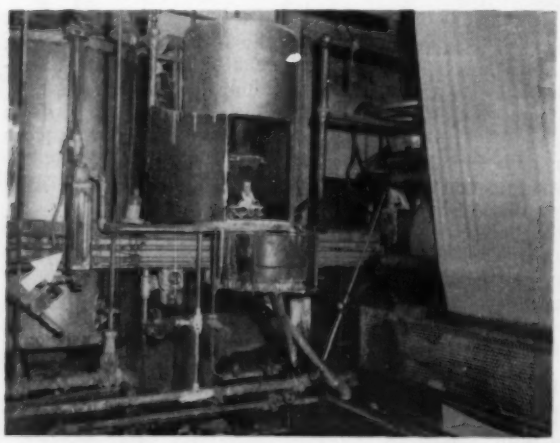
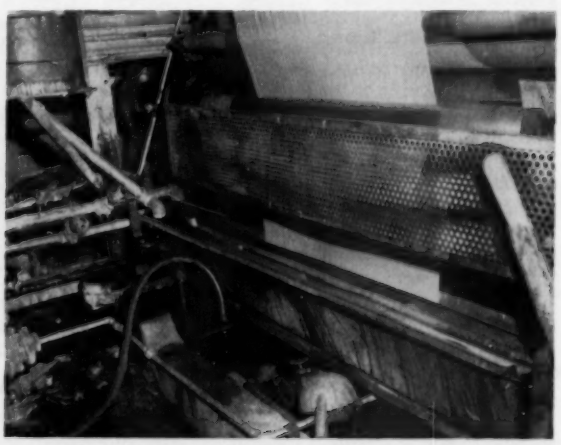


FLOWMETER (arrow) and dispenser (top center) feed caustic and hydro respectively to the small tank, which feeds the solution to the dye pad below.



DISTRIBUTING PAN in front of the pad proportions the flow of caustic and hydro across the full width of the pad to keep reduction potential even.

Test Your Own LOOM PARTS For Low Cost and Efficiency

• The cheapest first cost of loom parts does not necessarily mean the lowest operating cost. Making tests in your own mill may reveal many unexpected paradoxes.

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

TO BE PROGRESSIVE, a mill must constantly make its own tests of new loom developments. The fact that each part or attachment has many modifications, some made by different firms or of different materials, makes the testing more difficult.

For instance, a shuttle eye is a rather simple object; but one shuttle firm lists 700 different eyes. The selection of the best eye for just one weave is an important undertaking, and many mills run dozens of different styles.

Another thing that makes mill testing necessary is the variety of similar loom parts made by different firms. There are dozens of firms making checkstraps. A strap can be obtained from any of these firms cut to exact specifications. But although the checkstraps of different makes may look exactly alike, there is a difference in the price and performance of many of them.

Mill Tests Checkstraps

Determined to do something about the high cost of checkstraps, a mill tested half a dozen different makes of straps. At the time, the mill was buying the cheapest strap on the market; and the cost was approximately $1 a loom per month.

To make the tests, the mill put new straps on different blocks of looms, 12 looms or 24 straps per block, in selected locations in the weave room.

Bolted between the ends of the straps was a cardboard tag listing the make of strap and date of installation. As each strap was replaced, the tag was taken off the old strap and the data on its operating life recorded.

At the end of several months, the results were tabulated and the make of strap that showed up best was used for replacements on all the looms in the mill. At the end of 12 months, the checkstrap costs for the mill had been reduced from more than $2,000 per month to a little over $700. And this saving was accomplished by changing from the cheap strap that sold for $2.40 per pound to a strap that cost $3.15 per pound.

These checkstrap tests proved that cheap first cost does not always denote cheap operating costs.

There are other things to consider, too. By selecting a checkstrap that would last four times as long, three-fourths of the machine downtime for strap replacement was eliminated. The loomfixer's work and the inventory of checkstraps in the supply room were also reduced proportionately.

Make Tests Under Right Conditions

Tests of other parts such as shuttles, pickers, picker sticks, binders, harness strap, sheaves, etc. can be easily made by this method. All that is required is enough samples for a fair demonstration of the law of averages. Comparison tests of parts should be conducted under conditions as nearly alike as possible.

After a certain part has been proved best in actual practice, it is not always wise to consider the matter closed. Often it is advisable to use several different makes of checkstraps, shuttles, or other parts. A section or room using one kind of parts can be compared to another using a different kind, and a sort of perpetual comparison testing is thus conducted.

In addition to testing parts for service life and cost, it is also often necessary to check their effect on production and quality. Nothing is gained by saving money on parts and losing it on machine downtime and off-quality cloth.

Shuttle Eyes Tested

A mill traced the cause of an excessive number of mispicks to filling coming unthreaded from the shuttle eye. Trying a number of different eyes, it finally settled on a double-barrel eye that positively locked the filling yarn in after it was threaded in the eye.

The shuttle eye worked fine on a block of looms; and after a short trial, the mill installed them in all shuttles in the looms weaving that construction of cloth. With the cooperation of the cloth room, the weave room kept a record of the average number of yards of cloth to each mispick. Immediately after the new eyes were installed the number of mispicks decreased 50%.

But in a few weeks the number of mispicks began to increase. Soon the yards per mispick was back where it had formerly been, and the trend was still toward more mispicks.

The mill finally located the trouble. The two holes or barrels in the shuttle eye had a narrow slot between them through which the filling yarn passed when it was threaded through the eye, and rough places on the edge of the slot were cutting the yarn. It was found that the end of a quill hitting the eye would chip off a bit of metal and leave a razor-sharp edge at the corner of the slot. Many of the eyes were found to be damaged in this way.

So it can be seen that testing of parts must be a continuous process. What is best today may not be best tomorrow.

Guard Against Prejudice

Changing conditions such as different fibers, fabrics, loom speeds, humidity, etc. often make tests of loom parts and materials necessary. Such testing is valueless unless it is made for a suitable length of time on a sampling scale large enough to give a true picture.

Another thing to guard against is personal preference or prejudice. A test should be absolutely impartial. But if care is not taken, the results of a test can be made to favor a preconceived conviction.

As an example, a loomfixer is given three kinds of checkstraps to test. One is preflexed and is easier to install and

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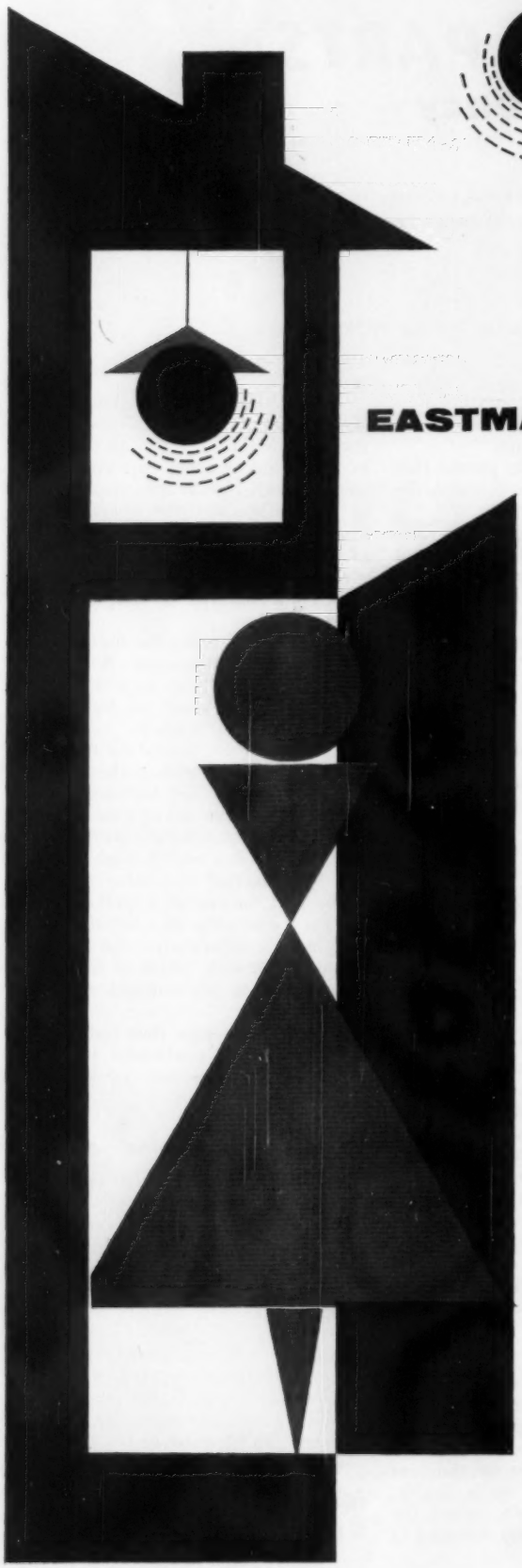


true-blue

indoors and out

EASTMAN POLYESTER BLUE 3RL

New Eastman Dye Does Not Flare Red Under Artificial Light

Seldom has a new dye had such rapid trade acceptance as Eastman's Polyester Blue 3RL. And with good reason. Polyester fabrics and their blends dyed with this truly outstanding blue dye *do not flare red under artificial light.*

Moreover, this Eastman polyester dye has better resistance to sublimation than ordinary polyester dyes offer—an important advantage in suitings. Eastman Polyester Blue 3RL has excellent processing characteristics...good build-up, good exhaustion and outstanding leveling properties.

Eastman Polyester Blue 3RL is a bright shade of reddish blue. Dyers looking for economy plus performance find Eastman Polyester Blue 3RL an excellent blue component for navies, dark browns, tans and blacks.

Polyester Blue 3RL is only one of eleven primary and shading colors comprising Eastman's new series of dyes developed specifically for use with polyester fibers.

Eastman polyester dyes exhibit excellent fastness to washing, light, dry cleaning and wet pressing. In fact, this new series of polyester dyes, evaluated in laboratory and commercial tests, provides the best over-all fastness properties of any group of polyester dyes currently available.

Dyeing of polyester fabrics is easily accomplished with carriers or dyeing assistants, although these are not required if the dyeing procedure is carried out at high temperature (250°F). Fibers can be readily dyed in tow, tops, stock, or fabric forms. Fabrics of polyester filament can be conveniently dyed in jigs. Fabrics woven of spun polyester yarns alone or blended with cotton, viscose, or wool can be easily dyed in dye-becks.

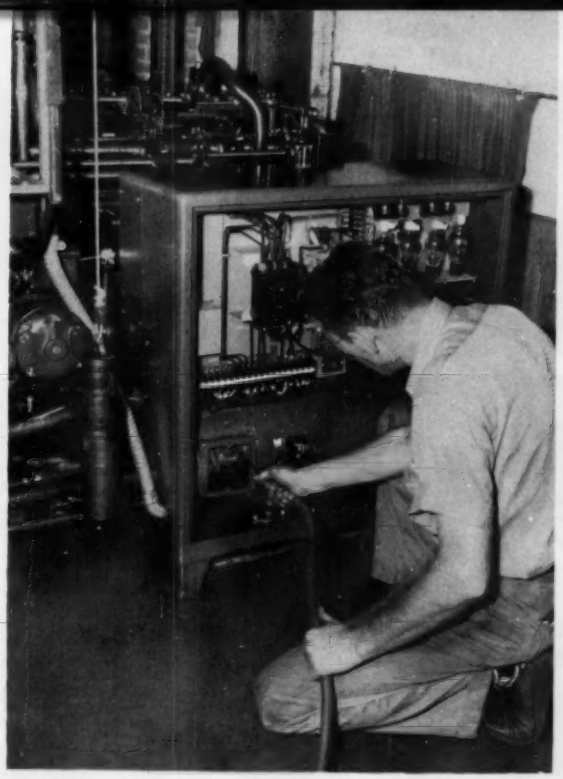
Tests show Eastman polyester dyes work well in combination with premetalized wool dyes in dyeing polyester fiber-wool blends, and with virtually all types of viscose dyes in dyeing blends containing viscose or cotton.

Ask your Eastman representative to show you color samples of these new, superior polyester dyes:

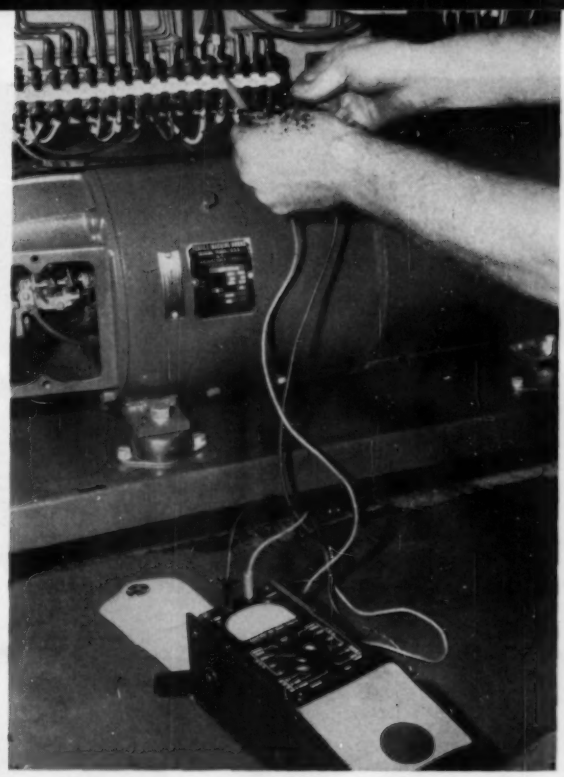
Eastman Polyester Yellow RL
Eastman Polyester Yellow W
Eastman Polyester Yellow 5R
Eastman Polyester Red B
Eastman Polyester Red 2G
Eastman Polyester Dark Red FL
Eastman Polyester Blue GR
Eastman Polyester Blue GLF
Eastman Polyester Blue 3RL
Eastman Polyester Navy G
Eastman Polyester Black RB

Eastman Polyester Dyes

Eastman Polyester Dyes are sold in the United States by EASTMAN CHEMICAL PRODUCTS, INC., a subsidiary of EASTMAN KODAK COMPANY, in Kingsport, Tennessee; Lodi, New Jersey; and Greensboro, North Carolina. On the West Coast through Wilson Meyer Co., San Francisco, Los Angeles, Portland, Seattle, Salt Lake City. In Canada through Clough Dyestuff Co., Ltd., St. Laurent, P.Q.



THE CONTROL BOX should be cleaned out with the air hose every six months. Blowing through the generator will remove lint and pieces of yarn that increase fire dangers.



A VOLTMETER-OHMMETER can be used to check the drive for faults. It saves time and the cost of replacing parts. The knitting-machine fixer can use the instrument safely.

Maintain Variable-Speed Drives on FULL-FASHIONED MACHINES —

—with a regular program of inspection and cleaning that can be done by the knitting-machine fixer. Use a voltmeter-ohmmeter to check the drive to prevent needless replacement of parts.

By J. C. BAUMGARDNER, Lee Hosiery Mill, Inc.

RELIANCE DRIVES USED ON READING FULL-FASHIONED KNITTING MACHINES do not require the full-time services of an electrician. At least one fixer on each shift can be taught to service this drive competently in a few hours.

He need not know a great deal about electricity. A few simple rules and the knowledge to use a voltmeter-ohmmeter are sufficient, and an electrician need be called only in case of a major electrical breakdown.

Work Out a Replacement Program

After the fixer studies the instruction book furnished with the knitting machine, he should work out a program of replacement of parts that wear at regular intervals. Here's a program we have found satisfactory:

Replace all brushes in the motor and the generator in the control panel every six months. Brushes are expected to wear, and their replacement costs are little if they are replaced before they are completely worn out.

The contactor points on the control panel also wear and should be replaced every six months. Blow out the control box with air pressure every six months.

Blow through the generator to remove dirt, accumulations of lint, and pieces of yarn. This practice prevents costly damage by keeping lint from catching fire from sparks at the brushes.

If lint does catch fire, an air hose is the best thing to put it out. However, a fire extinguisher for use on electrical fires should be handy if the air hose is not successful.

Inspect and Polish Armatures

When the brushes in the motor and generator are replaced, the armatures should be inspected. See if they need polishing.

If they have a darkened but shiny appearance, they are in good condition. If they have a dull darkened appearance, they need to be polished with a very fine stone. If there are worn grooves or high places on the armatures, they should be honed down with a polishing stone until they are even.

Check the spring pressure of the

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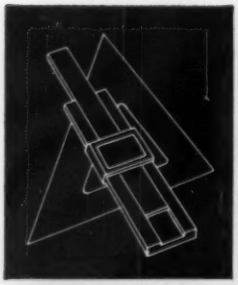

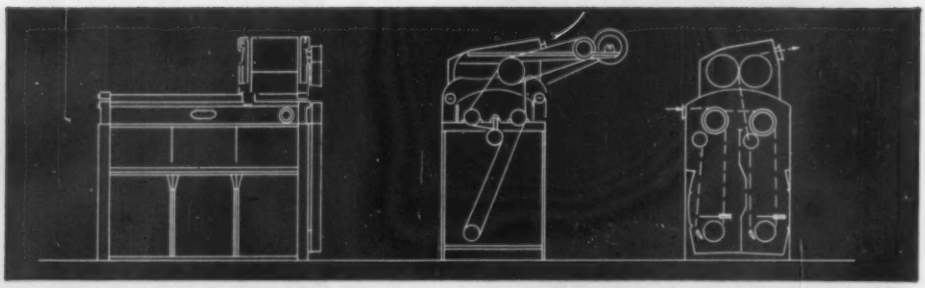

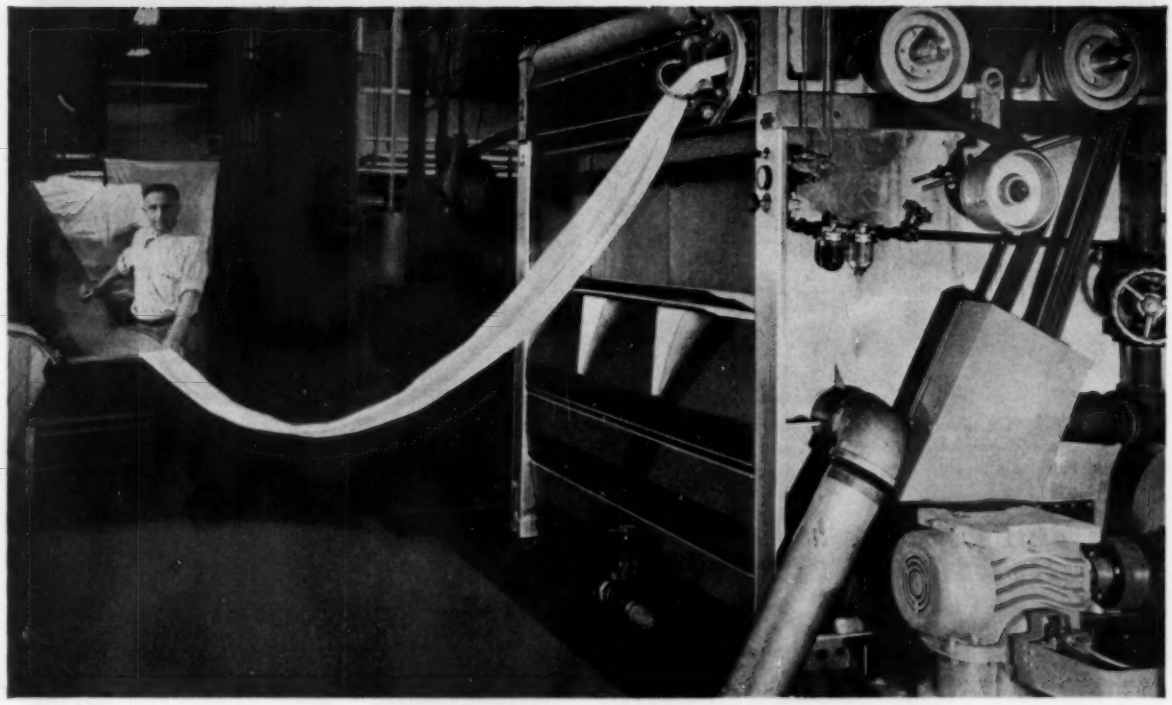

Heavy goods are washed at speeds up to 200 Y. P. M. in the Tensitrol washer

At the Pond Lily Company, famous for dyeing and finishing special fabrics of exceptionally heavy construction, two Tensitrol® washers handle millions of pounds a year. Water penetrates the fibers and washes heavy goods thoroughly, even at speeds up to 200 yards per minute. A patented feature of the Tensitrol washer automatically minimizes tension as the cloth passes through the machine. Temperature is closely controlled, and steam confined within the machine to end fog nuisance in the plant.

Nearly 600 Tensitrol washers in use today handle standard fabrics and expensive specialties, ranging from light to heavy. Only Tensitrol units wash so effectively and economically at high speeds, consuming less water and power, requiring minimum floor space.

Among recent improvements are high-flange spools for greater flexibility at high speeds, "spool tire" doffer which assures positive traction from squeeze rolls, redesigned splash shields and easy-access sectional enclosure for convenience in removing rolls.

Rodney Hunt wet finishing equipment is backed by three generations of engineering and manufacturing experience. Write for further information.

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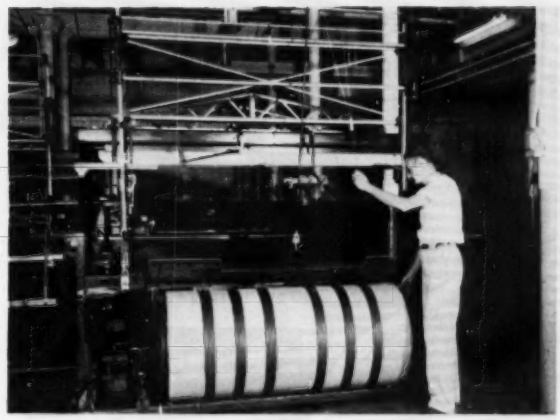
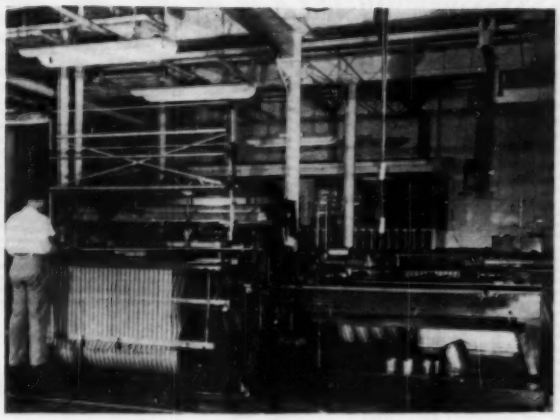
SERVING THE TEXTILE INDUSTRY WITH EQUIPMENT AND ENGINEERING



WARP to be drawn is put up by the helper. He also takes down the drawn warp in addition to other work.



DRAWING IN is done by the operator. As soon as one warp is drawn, another is ready on the second holder.

DRAWING-IN Machine Draws Warps Fast and Accurately

• After two years' operation, a new drawing-in machine at Avondale Mills has gone a long way toward paying for itself in labor cost. But more important, warps are drawn faster and more accurately.

A DRAWING-IN MACHINE installed at Avondale Mills' Bevelle Plant, Alexander City, Ala., two years ago has required only a little maintenance and has almost paid for itself.

But other advantages gained are more important than getting the original investment back:

1. A warp can be drawn and placed in a loom only 1½ hrs. after it is doffed at the slasher.

2. Warps are drawn more accurately with the machine than with hand drawing.

With hand drawing, drawing-in operators worked only one shift. Often a warp could not be completed during an 8-hr shift, and the warp had to wait overnight. Now a warp is drawn in only a few minutes.

The drawing-in machine is a Barber-Colman Model 66 G SH 66 ins. wide, but warps 72 ins. wide are drawn satisfactorily at Avondale with the machine. The speed is 140 ends per minute. The machine draws 22 harnesses and 6 banks of drop wires at Avondale. An average of 7½ warps for a total of 35,000 ends is drawn each shift.

Machine Draws 50 Styles

Most warps at the Alexander City plant range between 4,000 and 6,500 ends. Most cloth styles have three, four, or five harnesses. Approximately 50 styles are being drawn at present.

Fabric constructions range from 65 to 112 ends per inch; the average is about 90 ends per inch. Warp-yarn numbers, for example, are 13.20s, 16.80s, and 20.50s. Fabrics woven are tickings in plain and fancy stripes, twills, drills, denims, and drapery materials. Fabric width is 30 to 72 ins.

Avondale prepared for the machine for three years by replacing all worn harnesses with Drawtex-type harnesses. New drop wires were also added during the period.

First Training Was Fast

An instructor from Barber-Colman Co. trained three operators and the foreman of warp preparation to operate the machine. The foreman had past experience on an older type of drawing-in machine. The training period lasted 12 weeks, and results are so satisfactory that the instructor has not returned to the mill.

The machine is operated on three shifts, and one of the operators trained is in charge of the machine on each shift. It's his job to see that all warps are drawn correctly. He has two helpers.

The operator sets up the machine for each warp and places the correct pattern chain on the machine. The operator and the No. 1 helper lease the warp to be drawn and place it in the machine.

Preparation Is Thorough

The operator counts and checks each end in the colored stripes. He checks the warp by the warp-identification tag made by the quality-control department to be sure the warp is correct. The tag gives (1) the number of ends of each color, (2) total warp ends, and (3) the reed number. The operator draws the warp.

While the operator is drawing a warp, the No. 1 helper puts up another warp on the holder so that it's ready for the operator when he finishes drawing the first one. Then the No. 1 helper draws in all ends out on the

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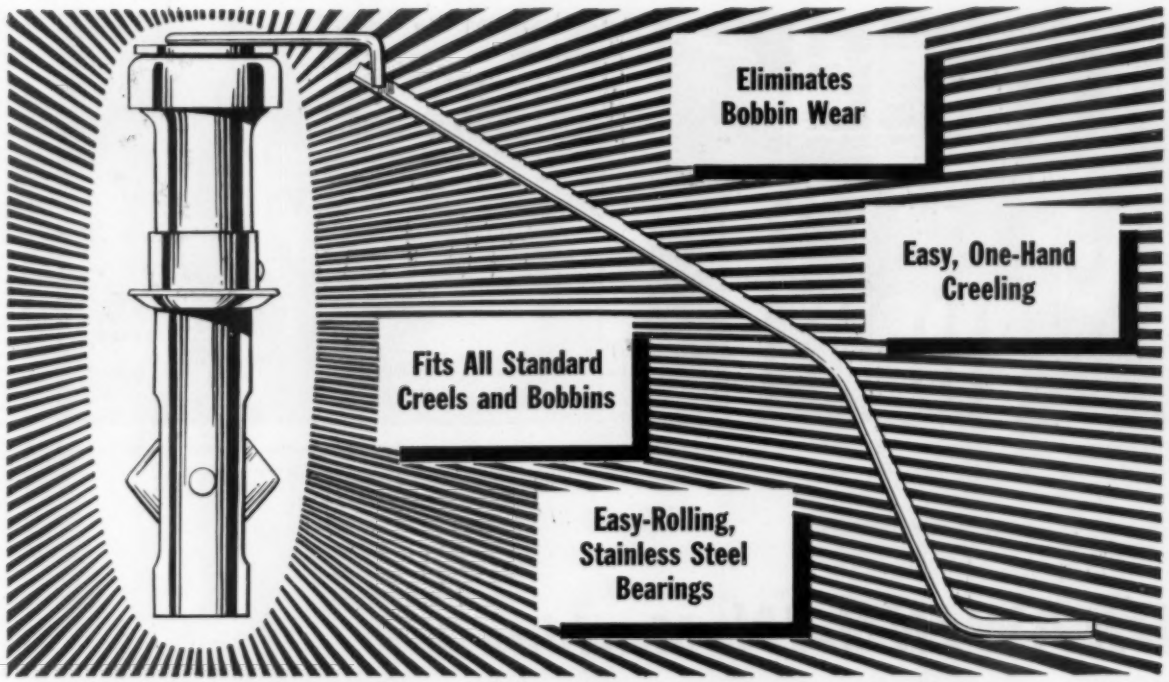
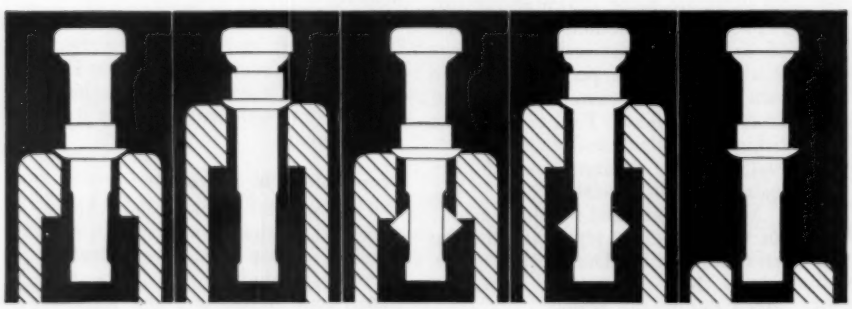

Eliminates Bobbin Wear
Easy, One-Hand Creeling
Fits All Standard Creels and Bobbins
Easy-Rolling, Stainless Steel Bearings

IT'S HERE! THE ALL-NEW BENDIX SPIN-MASTER BOBBIN HOLDER!

Here's the greatest improvement in bobbin holder design in many years—the Bendix* Spin-Master! Made by the manufacturers of the reliable Eclipse Bobbin Holder, the Spin-Master is adaptable to *all types* of creels and to practically *all sizes* of bobbins. Its exclusive nylon latch holds the bobbin securely yet does not gouge or wear the bearing surface. Because of its unique design, the Spin-Master makes creeling a one-hand operation. Its extra-free rolling action is superior to that provided by any other bobbin holder. And, of course, it is thoroughly corrosion resistant. Order today, or, if you prefer, write for additional information.

*REG. U.S. PAT. OFF.

HERE'S HOW IT WORKS



Bobbin holder slides easily and freely into top of bobbin. Nylon latch is concealed within the barrel of the holder.

Bobbin is pushed up against collar of bobbin holder. At this point, latch is still concealed inside the bobbin holder.

As bobbin is allowed to drop, collar of bobbin holder slides down to original position and latch snaps into place, suspending bobbin.

To release bobbin from holder, the bobbin is again pushed up, raising the collar of the holder. Latch is still securely in place.

When bobbin is again allowed to drop, latch retracts into body of bobbin holder, so that bobbin may be easily removed.

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Fluid Beds Speed Up
FABRIC PROCESSING

A new conception in drying media has been evolved from the catalytic processes used in oil refining. Called a fluid bed, the system uses heated sand or glass particles supported on a column of air to—

- **Remove moisture from fabrics**
- **Speed up dye fixation on hydrophobic fibers**
- **Cure resin finishes on cellulosic fabrics**

Table 1

Dry-cloth weight (lbs.)	Treated-cloth weight (lbs.)	Cloth weight after drying in fluid beds (lbs.)	Bed temperature (°C.)	Drying rate (ft. per min.)	Evaporation rate (lbs. per sq. ft. per hr.)
48	98	47	160 to 170	130	18.4
47	97	46½	155 to 160	125	17.5

A 4-OZ. SPUN-RAYON FABRIC carrying 100% moisture can be dried rapidly by passing it through a U-shaped fluid bed. The figures at the left are for a 200-yd. cut of cloth.

RAPID MOISTURE REMOVAL AND THE SWIFT COMPLETION of chemical reactions within a fabric appear to be the outstanding features of the fluid-bed drying system developed by the British Rayon Research Association in Manchester, England.

Fluid beds were first used in the catalytic processes of oil refining. The beds used for textile processing consist of particles of sand or glass in the 100-micron to 1-millimeter range, and the fluidizing medium is air.

In operation, air is blown through the stack containing the sand or ballotini at sufficient velocity to keep the particles suspended and constantly moving. Heating elements within the stack keep the bed hot, and the air carries away the evaporated moisture.

The fabric to be dried or treated is passed through the heated bed, and the contact of millions of hot solid particles removes the moisture very efficiently as compared to heated air alone.

The advantages of contact drying such as drying on cans are retained without the disadvantages that develop from can drying in some instances.

An example of the efficiency of the fluid-bed system of drying is given in Table 1.

In this case, the fluid bed was heated by gas, but the figures can be converted in terms of steam consumption to show an efficiency of 85% and a steam consumption of 1.4 lbs. of steam per pound of water evaporated.

This efficiency compares very favorably with the very best air-drying systems available and is considerably better than most air-drying methods now in use. An added advantage is that less horsepower is required to fluidize the bed than is necessary to reach high efficiencies in air-drying systems.

Samples of rayon fabric that had been padded in a resin solution and dried on a tenter frame at 90° C. were placed in the fluid-bed system for curing. Table 2 shows the percent of resin that was retained after curing, followed by an afterwash to remove excess resin.

The hand of the material cured at 175° C. for 7 secs. was considered to be excellent and comparable to older methods of curing.

Similar trials on rayon ribbons showed that good results could be obtained with urea-formaldehyde condensates at a curing temperature of 175° C. for 12 secs.

Table 2

Curing temperature (° C)	Curing time (secs)	Original resin content (%)	Retained resin after scour (%)
150	30	15.3	86.4
165	8	16.0	93.8
175	7	15.5	99.7

FLUID BEDS provide an excellent curing medium for resin finishes. In the trials run at 165 and 175° C., note the exceptionally high percentage of retained resin.

Dyeing Speeded Up

The problems peculiar to getting deep shades on hydrophobic fibers within a short time and at reasonable expense would appear to be closer to solution when the fluid-bed principle is applied.

Fabrics made of Dacron, nylon, Arnel, and secondary acetate can be dyed with disperse dyes, azoic dyes, and the Procion dyes at considerable saving of time when the fluid-bed system is used.

Pilot-plant studies show, for example, that Dacron ribbons padded with a mixture of disperse dye, water, glycerine, and a dispersing agent can be well penetrated when they are dried in a fluid bed at 190 to 200° C. during an immersion time of 10 to 30 secs. Any loose color is removed by a light soaping.

Similar results have been obtained with nylon and acetate fabrics.

How Azoic Dyes Are Applied

Conventional methods of applying azoic colors do not work with the hydrophobic fibers, but the fluid-bed method gave very promising results on nylon, Dacron, and acetate fabrics.

The method that works for Dacron is to pad on a dispersion of a naphthol and a diazotized base and put the goods through a fluid bed heated to 195 to 200° C.

CONTINUED ON PAGE 230

ACRYSOL GS

Fabric backings go on easy and last long

A little bit of ACRYSOL GS thickener goes a long way in improving the backing of carpet and upholstery fabrics. First off, application is easier because ACRYSOL makes compounds unusually smooth in texture and exceptionally stable in viscosity. Secondly, the backing itself is better. That's because ACRYSOL GS provides a smooth coating with excellent resistance to aging, dusting, and unusual uniformity in application.

ACRYSOL GS is so widely compatible and such an efficient thickener that it can be used with many resins, latex emulsions, and filler ingredients. For still other backing systems, two new thickening agents are also available. ACRYSOL ASE-60, a non-linear thickener, provides high viscosity in small concentrations. ACRYSOL ASE-75, a linear thickener, is especially suitable for GRS rubber.

ACRYSOL is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.

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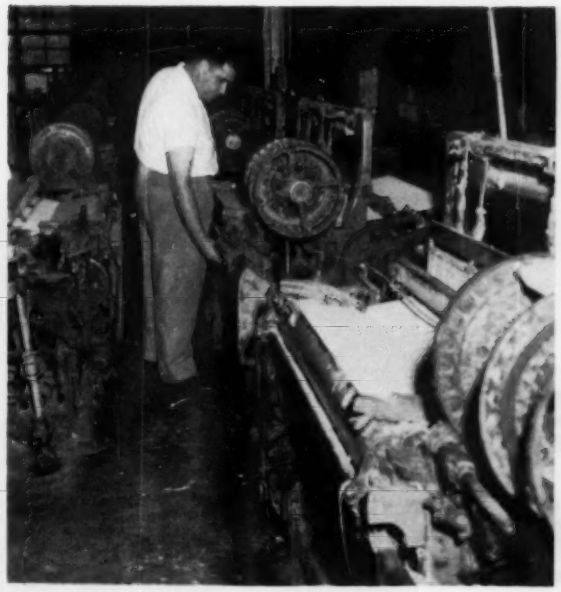
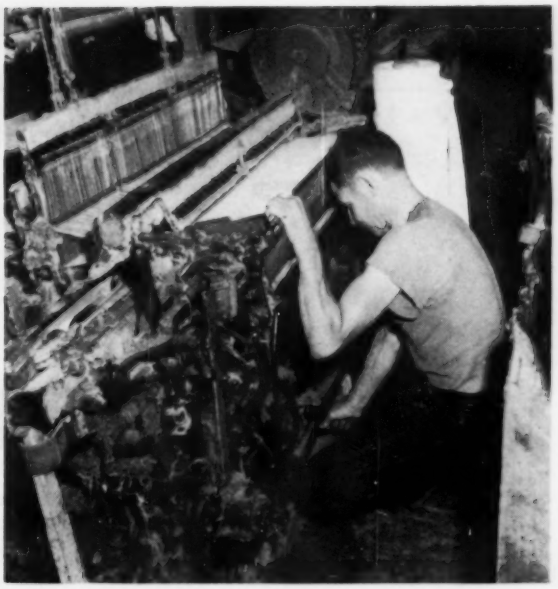


WEAVE ROOM has a concrete floor, and the looms are mounted on felt pads.



CLOTH IS DOFFED in 150-yd. rolls and carried immediately to the cloth room for inspection.

How a Small Weaving Mill Produces QUALITY SHEETING

Most of the looms in the Orangeburg, S. C., plant of South Carolina Cotton Mills, Inc., are weaving sheeting. To help improve quality and reduce costs, the looms are equipped with—

- **Bottle oilers**
- **Emery-covered take-up rolls**

With 536 looms in its Orangeburg, S. C., plant, South Carolina Cotton Mills, Inc., competes successfully with larger textile-manufacturing units. Most of the fabric produced in the mill is sheeting.

A typical cloth construction woven is 40-in. 44x40 sheeting weighing 3.75 yds. per lb. The warp is composed of 1,932 ends of 19½s cotton and the filling is 21s cotton.

The looms are 36- and 40-in. Draper E models. There are 190 belt-driven looms in one room and 346 looms with individual-motor drives in another room. The larger room has a concrete floor, and the looms are mounted on felt pads.

Since only plain goods are being woven, the spring-top harness motions are being replaced by roll tops. The looms have vibrating whiproll cams and thin-place detectors. Electric warp stop motions are used on 146 of the looms. The other looms have mechanical stop motions.

The high-roll take-ups have an emery-coated covering. The mill likes this covering because it can be glued on. The covering has no nails or sharp projections to damage the cloth. It is also claimed that the emery-coated covering will give longer service life than steel fillet. The dogwood shuttles take an 8¾-in. bobbin. One bunch of pig bristles in the back wall of the shuttle furnishes tension to the filling.

Same Pattern Is Tied Back on Loom

When a warp runs out, the pattern is removed and tied to a full beam by a stationary tying machine. The loom is cleaned and lubricated while the pattern is being tied. The same pattern is then put back in the loom. Using the same pattern for a loom not only eliminates much harness-setting work but also saves many shuttles because the reeds are always correctly aligned to the loom boxes.

Bottle oilers are being used on the crankshaft bearings of some of the looms and are giving good service. The bottle oilers insure a constant supply of oil to the bearings and also make the lubrication chore easier for the loomfixer and the oiler. The bottles are refilled every two weeks.

Looms Are Cleaned Every Day

Each loomfixer has 88 looms on his section. The section is divided into three equal parts for maintenance work. The loomfixers on each shift check the shuttles, pickers, binders, and swords weekly on their third of the section. In addition to routine repairs, the loomfixers also do most of the loom maintenance work. An over-

CONTINUED ON PAGE 232

Extend traveler life —
Reduce ends down per M.S.H.
Cut spinning room operating costs

Specify
SACO-LOWELL
*ROBBINETTE**
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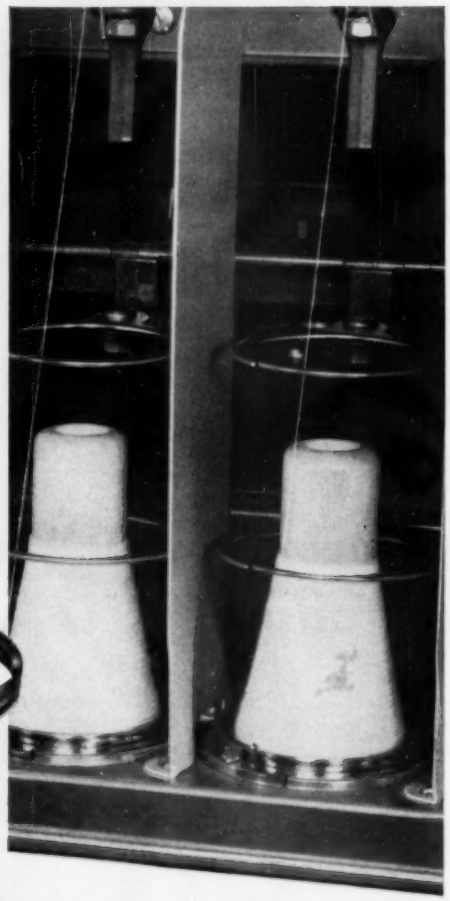

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Because Robbinette rings are manufactured to exacting Saco-Lowell standards you are assured of a high degree of circularity; uniformity of hardness and depth of case; and dimensional uniformity of flange and web.

Through increased production, top quality yarn, and longer traveler life, the installation of Robbinette Rings on your spinning and twisting machinery will result in a maximum return on the original investment — they actually pay for themselves.

Have an installation of these modern rings made in your mill and prove their superior operating characteristics for yourself.

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How To Conceal Facts Gracefully

• You hear a lot about how and why and when to pass on information to your workers, other supervisors, your own boss, and the public. But part of what you know is confidential. What are you supposed to do when somebody asks you a direct question about something you think you shouldn't reveal?

• Here are some suggestions on how and why and when to avoid passing along information without offending the questioner.

By **WILLIAM G. SHEPHERD,** Research Institute of America, Inc.

George works for you. He's a nice guy, gives you very little trouble, gets his production out, and catches on fast when there's something new. He's friendly with everybody and treats you with respect. There's only one problem with George: he's always asking questions you don't know how to answer.

Oh, you know the answers all right. But you're never sure whether George is entitled to know them.

The Missing Chapter

You are supposed to be a master of communications. Every book on management tells you that one of the first responsibilities of a supervisor is to be an expert at passing information up, down, and across the organization.

None of them tells you how not to pass it along when it shouldn't be released.

An employee finds you in a mellow mood. He slips in a question that you feel is really not any of his business. How—without belittling him—do you conceal the facts that he has no right to know?

Technique For Losing Friends

A loomfixer gave us the employee's view of how, in all innocence, it can be done wrong:

"The boss and I were just going out the door. I'd been in the weave room; he'd been in a meeting most of the afternoon. I asked him, 'Anything new on the merger, Mr. Knapp?'

"In dead silence we walked all the way out to the parking lot. Finally, as we came to his car and were about to go our separate ways, he said, 'Uh, I don't believe I should discuss the merger with you, Gordon.'

"Boy! Did he cut me down to size! My self-esteem dropped 50 feet and split right down the middle. I guess I must have hated him for a week."

If you'd be as stumped as Mr. Knapp, don't despair. Most overseers and second hands we've interviewed feel exactly the same way. This, they say, is a problem they've experienced often but have never learned to solve. One hardboiled old supervisor admitted he wouldn't have tried to do even as well as Mr. Knapp but would probably just have blurted out, "Gordon, that's none of your damn business."

Plural Answers, Tailor-Made

There are right ways to handle such a situation, but no one right way. A pat reply, applied indiscriminately to different cases, will cause trouble nine times out of ten. Both who it is that asks the question and what the question is require weighing and evaluation each time if you are going to avoid the embarrassment of failure.

So a number of answers are given here—enough, we hope, to provide you with an arsenal from which to choose the proper weapon for each attack.

But First, Know Why

Perhaps it isn't necessary to hold back the information from that specific questioner. The personnel superintendent of a synthetics-yarn plant lets us in on some of his own second thoughts:

"After I've cut off communications like that in the middle of a conversation, I often stop and ask myself why I didn't give the man the answer. The chances are that when I've thought about it, I realize no harm would have been done. The fellow who is interested enough to ask is sometimes entitled to an answer for that reason alone. Of course, there always are some things you just can't talk about."

Occasionally a supervisor is simply close-mouthed. He never tells anybody anything. Before long, people learn he's a clam; so no one asks him questions. But if you haven't established such a reputation, you are challenged with this dilemma; and before you decide not to reply, you need to ask yourself, "Why should this information not be given to this person?"

The answer may fall in any of several categories:

• **It would be harmful to the company** or put the company in a bad light.

• **It would disrupt higher management plans** to publicize the information.

CONTINUED ON PAGE 236

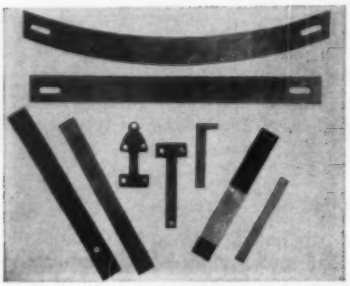
(*Advertisement*)

GARLAND MFG. 91st YEAR

Garland Manufacturing Company, Saco, Maine has been manufacturing rawhide products for the textile industry since 1866. H. P. Garland, founder of the company, was the author of a text on the water buffalo and rawhide applications in the textile industry which is used as a standard reference source on the subject. The company buys choice water buffalo hides from Java, Burma and other Far East sources. These hides are cured for the Garland concern in England. The rawhide is further processed in Maine and famous Garland Pickers and other rawhide products are manufactured for textile users.

NEW LINE OF LEATHER PRODUCTS

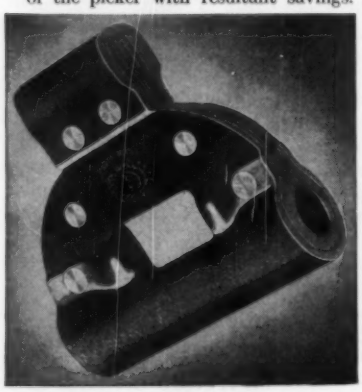
A need of the mills for superior leather products of uniform quality has prompted Garland Mfg. Company to produce check straps and by-products, such as picker checks, hold up straps, etc., of the finest imported hair-on leather as well as binder leather from the best oak tanned leather available.

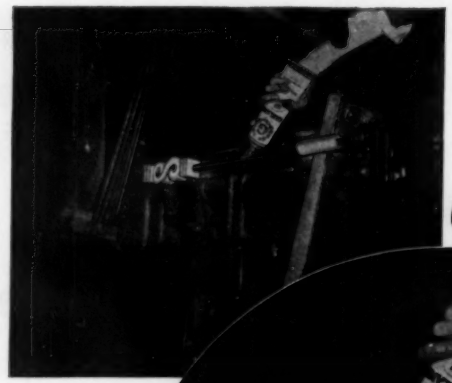


In many cases, it has been found that these superior products, because of Garland's production methods, are selling at prices lower than inferior grades.

REINFORCED LOOM PICKER

Research based on a survey of mills has enabled the Garland Manufacturing Company to produce a picker that far out-lives previous types. The new loom picker has a reinforced stick hole that corrects a basic weak point of pickers generally . . . provides much longer service. Likewise the spindle hole has been improved and strengthened by locked-in flanges at both ends. The picker head has been strengthened by a heavier outside layer of rawhide, eliminating the need for a rivet through the picker head. Mills using the reinforced loom picker have reported much longer life of the picker with resultant savings.





ALL 3 GO TOGETHER

GO TO GARLAND FOR ALL 3

It's a more efficient loom with Garland's rod lubricant, sponge leather bunter and rawhide picker! Here's why:

1. ***GARLAND ROD LUBRICANT AND APPLICATOR*** – Overcomes disadvantages of old-fashioned methods. Lubricant's tacky substance clings to rod. Eliminates oil drip, regular grease pile-up, overheating, excessive friction, frequent loom stoppage. Applicator fits all size rods. Squeeze of tube spreads uniform thin film of grease.

2. ***GARLAND SPONGE LEATHER BUNTER*** – Exclusive genuine sponge leather "takes" shock better. Long life assures economical operation. "Proved" through wide industry use. Now available in unlimited quantities for the first time.

3. ***GARLAND GENUINE RAWHIDE LOOM PICKER*** – Reinforced stick hole for longer service. Heavier, stronger picker head . . . pressure molded . . . improved spindle hole . . . water Buffalo hide — toughest material available, anywhere.

WRITE TODAY FOR FREE INFORMATION ABOUT GARLAND PRODUCTS FOR GREATER LOOM EFFICIENCY

Garland MANUFACTURING CO.

Manufacturers of RAWHIDE LOOM PICKERS • SPONGE LEATHER BUNTERS • RAWHIDE HAMMERS AND MALLETS

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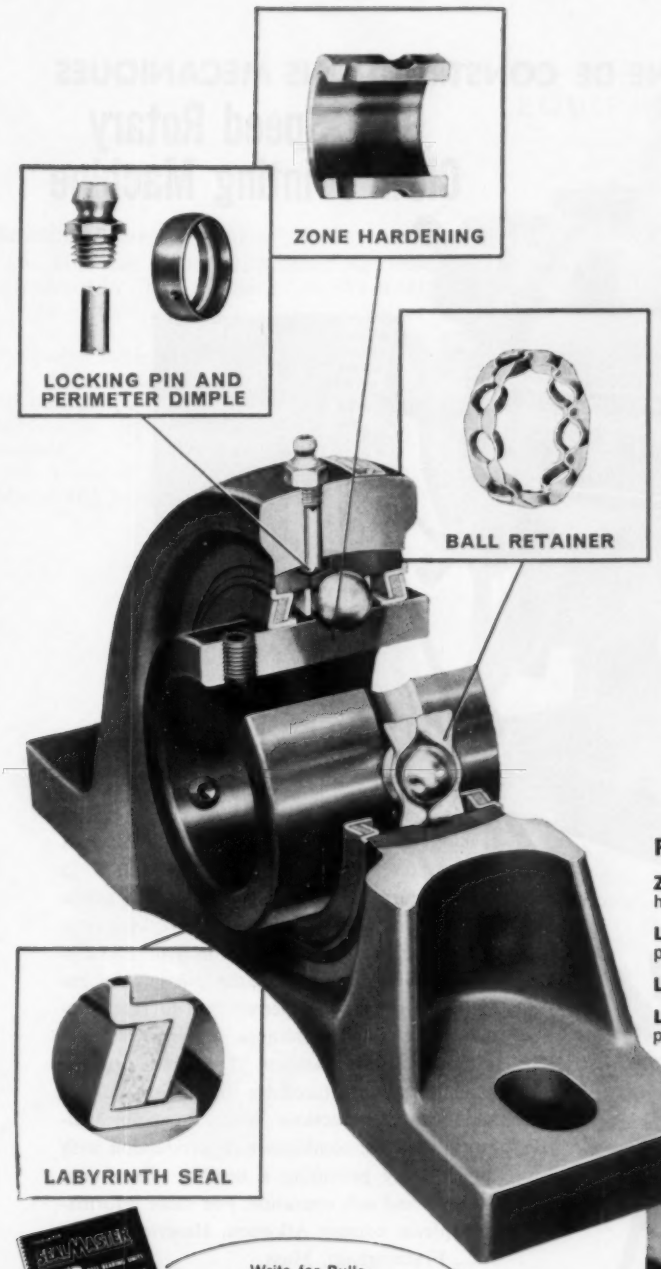

THIS EXCLUSIVE COMBINATION OF FEATURES IS YOURS WITH SEALMASTER BALL BEARING UNITS ... PLUS QUICK, EASY MOUNTING!

Slip a SEALMASTER Ball Bearing Unit into place on the shaft—tighten two set screws and you have the answer to ease of mounting in a bearing unit. SEALMASTER'S exclusive combination of features take over from there, providing smooth, trouble-free performance and long bearing life.

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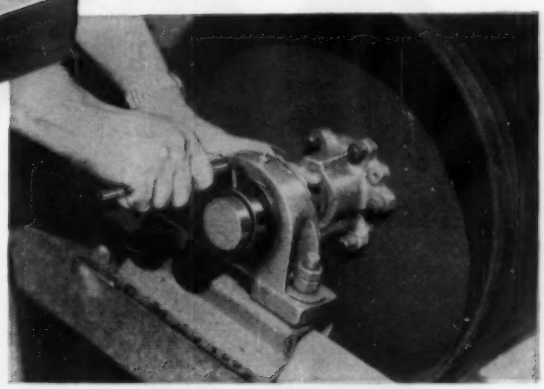

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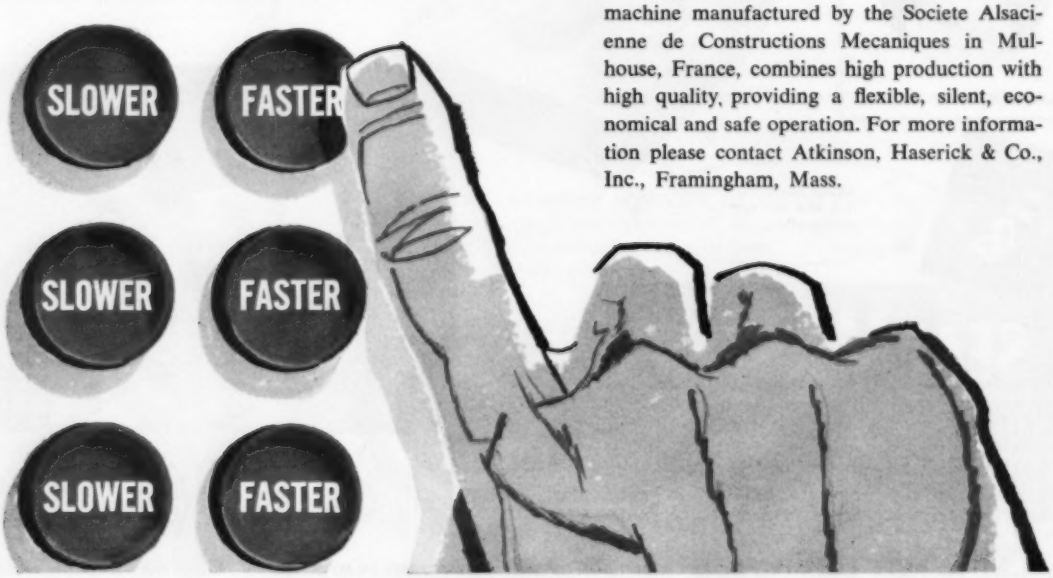
High Speed Rotary Cloth Printing Machine

Accurate - Safe

PUSH-BUTTON CONTROL



It is not necessary for the operator to leave his observation post in front of this machine to make accurate adjustments of pattern fit as the controls are at his fingertips. He works surely, swiftly and safely. The precision hydraulic regulating devices controlling the pressure on the engraved rollers also permit him to reset previously recorded conditions to rerun patterns without making samples. This new printing machine manufactured by the Societe Alsacienne de Constructions Mecaniques in Mulhouse, France, combines high production with high quality, providing a flexible, silent, economical and safe operation. For more information please contact Atkinson, Haserick & Co., Inc., Framingham, Mass.

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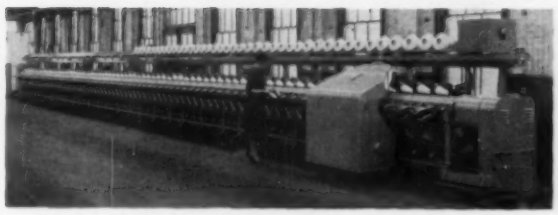
Knitting-Cone Winder

An improved Model 202 knitting-cone winder has been introduced by Foster Machine Co., Westfield, Mass.

New features include:

1. A microsetting slub catcher that visually indicates the proper setting of the slubber blades
2. An automatic bobbin sorter that conveys all doffed bobbins to the end of the machine, where partially filled bobbins are deposited in one truck and empty bobbins in another
3. A ribbon breaker similar to the one used on the Model 102 winder



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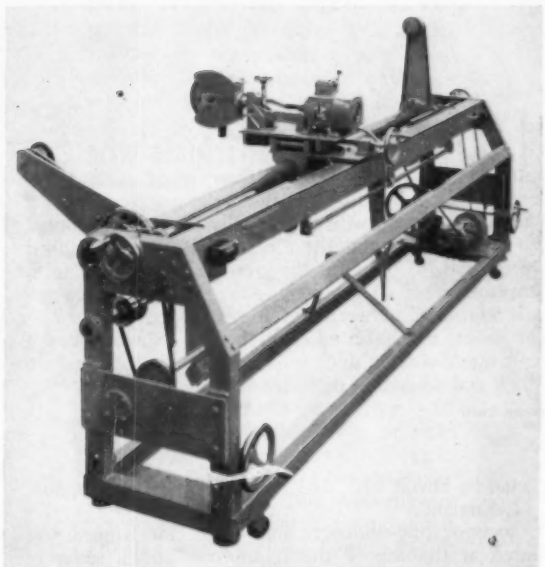


Napper-Roll Grinder

A machine that grinds napper rollers while they are still in position in the napper has been developed by Martin Hauck Textilmaschinen, 11 Bahnhoffstrasse, Karlsruhe, Germany.

The grinding head is mounted on a heavy movable frame that can be brought into position before the napper and locked in place. Adjustment of the grinding head is through a system of handwheels connected by worm gearing to the head mechanism. The grinding wheel can be set 20° off perpendicular to either side to accommodate various types of napper wire.

The napper roll is driven by a rubber-covered roll in contact with the napper roll. The grinder will side-grind 30 rolls in about 3 hrs.

Stellamcor, Inc., 60 E. 42nd St., New York 17, N. Y., is the U. S. representative.

Circle T-2 on Reader-Service Card

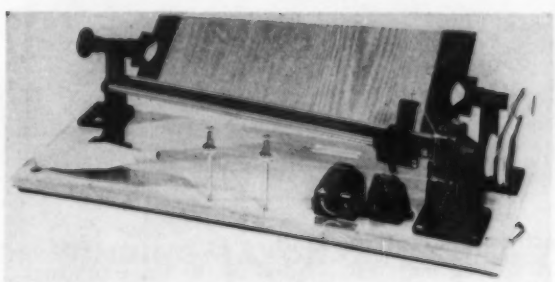
Yarn-Inspection Machine

A yarn-inspection machine for laboratory use has been introduced in the United States by Ernst Toenniessen KG., Munchen 27, Mauerkircherstrabe 86, Germany.

The apparatus consists of a driving mechanism that rotates a removable tapered blackboard and places a single strand of yarn on the board at any desired number of wraps per inch.

The manufacturer claims that a repeat pattern can be traced directly to the machine where the defect was made. An automatic stop motion permits the operator to attend other duties while the machine is running.

U. S. sales are handled by Watson & Desmond, 220 W. 4th St., Charlotte, N. C.



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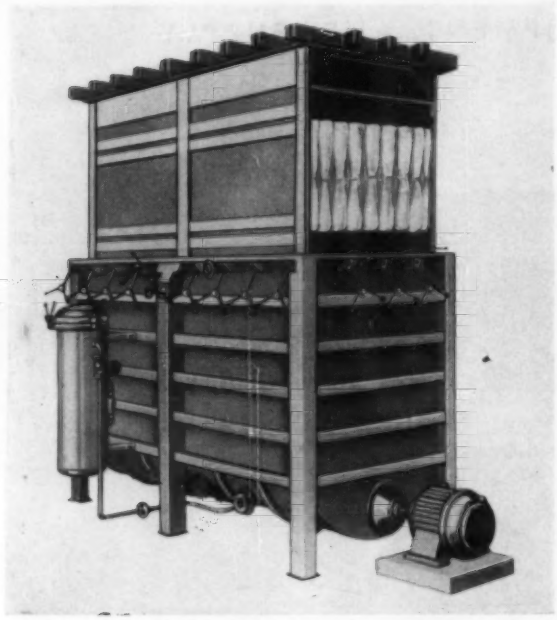

Skein-Dyeing Machine

A skein-dyeing machine that can be operated at high temperatures and pressures has been introduced by Cosa Corp., 405 Lexington Ave., New York 17, N. Y.

Made by Scholl Ltd. of Switzerland, the machine features pump circulation of liquor and uses the double-stick method of skein suspension to control bulking if high-bulk yarns are dyed.

Working temperatures up to 230° F. permit rapid dyeing of wool and all synthetics yarns.

Standard capacities are 25, 55, 125, and 250 lbs. of yarn.

Two or more machines can be connected together to give even dyeings on as many lots at one time.

Circle T-4 on Reader-Service Card

Intersector

The Tematex intersector, announced by Tematex, Corso Matteotti 1-a, Milan, Italy, has been designed to work on all fibers processed on the worsted system. The machine can be used for combing and recombing and for the first three or four drawing passages in the French, Bradford, and American systems.

Both ball and can creels can be arranged for six or eight doublings per head. When one head stops, the feeding section is stopped while the other head goes on working.

There are 88 fallers per head, and the faller drops per minute average 1,140. The delivery speed with 1,365 faller drops per minute is 12.3 times the draft.

The draft system with three rolls has been adopted (1) to process long and short fibers, (2) to easily adjust the ratch, and (3) to adjust the pressure on the draft rolls. Pressure on the draft assembly, given by a hydraulic system, is adjustable between 132 and 440 lbs.

The balling unit takes up to 30-lb. balls. Slivers follow a straight line from the draft unit to the ball. Cans are 36 ins. high and 15 ins. in diameter.

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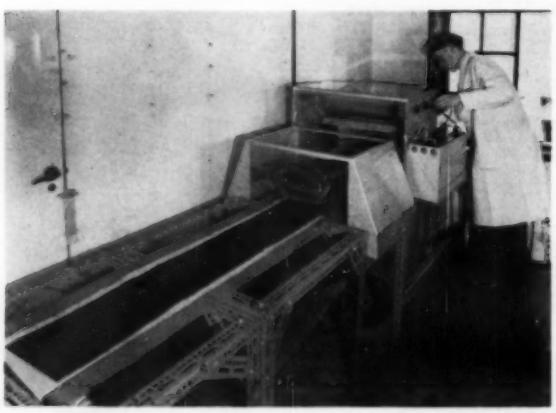


Electrostatic Flocking Unit

A flocking unit that is adaptable to the continuous production of yard goods or individual items has been marketed by Hivolt Ltd., 163 Holland Park Ave., London, W. 11, England.

A reciprocating hopper and sieve mechanism are mounted at the top of the framework, and a series of vibrating electrodes are mounted below the hopper.

A high-voltage generator provides the static charge that precipitates the flock onto the fabric below. A central control panel carries the motor controllers, voltage control, and other switchgear necessary to the operation of the unit.

Provision has been made to handle flock up to 2 mm. in length; and by changing the sieve, longer flock can be accommodated.

The machines have electrostatic flock-recovery units and can be supplied with auxiliary infrared drying units and adhesive applicators. Adhesive can be applied from a trough with a doctor blade for over-all effects or can be printed on in patterns from a specially prepared printing sleeve.

The printing mechanism can be supplied to run continuously for yard goods or fitted to run intermittently for printing adhesive on individual articles. All machines are built to customer specifications.

Circle T-6 on Reader-Service Card

Less Slippage, More Poundage, Uniform R.P.M. With This 180° Belt Contact

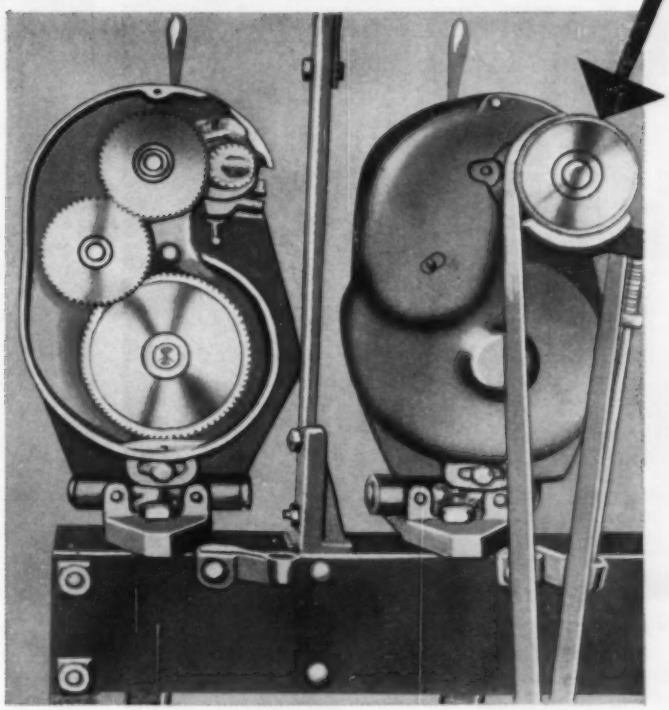


Illustration also shows positive gear driven gainer attachment which controls the ratio between the revolutions of the spindle and the cam.

FACTS ABOUT FOSTER MODEL 75

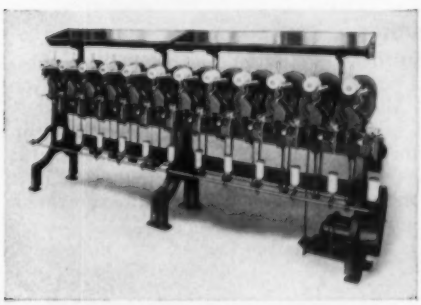
1 HIGHEST PRODUCTION, consistent with good quality. Spindle speeds up to 1500 r.p.m.

2 LOW OPERATING COST. Machine quickly loaded, threaded and doffed. Lifting of convenient handle starts spindle. Durable, positive automatic stop motion.

3 LOW MAINTENANCE & REPAIRS. Floor stands, frames, rails and supply board are made of steel. Spindles are ball bearing mounted. Belts are under tension only when spindles are running. Large diameter, wide angle cam reduces shock and vibration. Tension and pressure adjustments easily made.

4 HIGH QUALITY OUTPUT. Slow starting device prevents stretching and breaking at start. Practically straight thread line (even with oiling attachment) prevents excessive tension build-up. Straight edge cone has slightly convex base to prevent "nipping" when knitting or warping. Foster Zenith Yarn Cleaner provides accurate inspection. Tension automatically compensated for changing yarn speed. Oiling attachment designed to provide uniform application of oil.

Bulletin A-95-A on request



Each spindle on the Foster Model 75 (for winding rayon, nylon, silk and other yarns) is driven by its own belt from a countershaft running the length of the machine. There is a quarter turn in each belt and a full 180° arc of contact is obtained. Result — less slippage which means increased production and uniform r.p.m. of all spindles.

This is only one of many reasons why the Foster Model 75 produces an ideal cone (straight edge or pineapple) at minimum cost for knitting or warping. Other contributing factors are listed herewith.

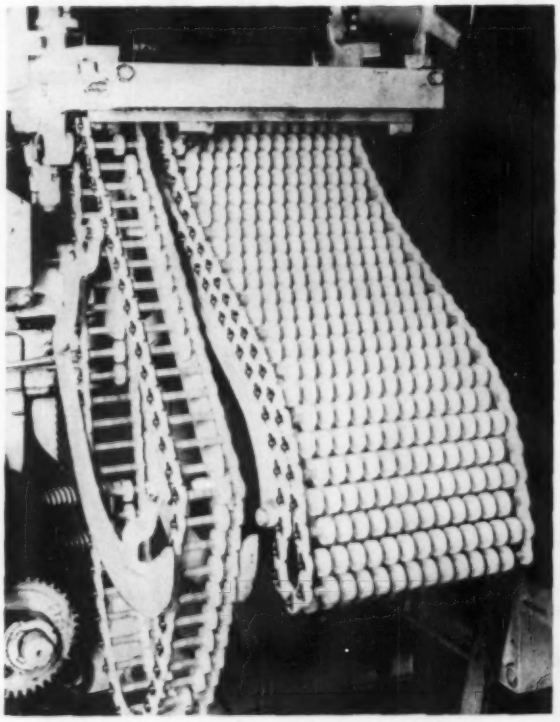
FOSTER MACHINE CO., WESTFIELD, MASS., U. S. A.

Southern Office: Johnston Bldg., Charlotte, N. C. Canadian Representative: Ross Whitehead and Company Limited, 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont.; European Representative: Muschamp Textile Machinery Limited, Keb Lane, Bardsley, Oldham, England.

FOSTER MODEL 75

FOR WINDING RAYON, NYLON AND OTHER YARNS

For more data, write this page number on Reader-Service card. →



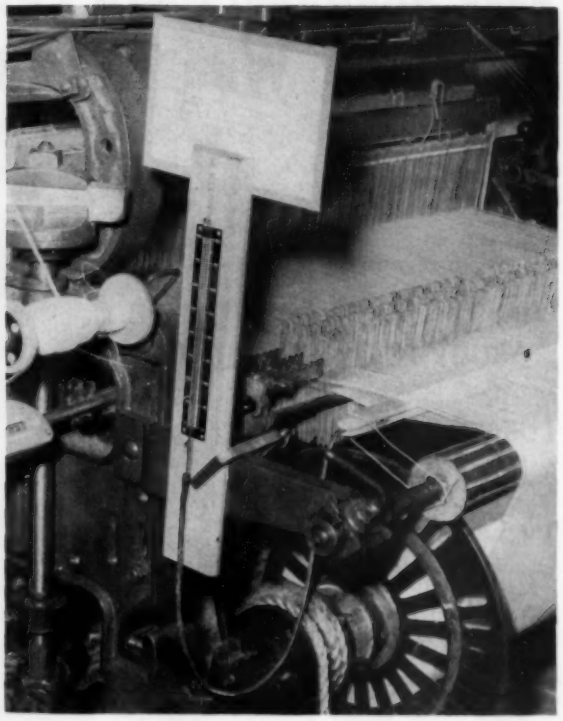
Nylon Pattern Chain

A nylon pattern chain has been developed by H. F. Livermore Corp., 20 Linden St., Boston 34, Mass. Made of DuPont nylon, the links, sinkers, and risers are molded by General Tire & Rubber Co.'s Bolta Products Div.

Nylon reduces the weight of chains about 66% as compared with steel, bronze, brass, and other metals. One of the major advantages is that lubrication is eliminated The results are a cleaner loom, time saved by the oiler, and less danger of getting oil and grease on the cloth.

The nylon maintains dimensional stability, which reduces wear to a minimum. Colored risers can be obtained to simplify building a pattern chain and to help spot errors in the design.

Circle T-7 on Reader-Service Card



Warp-Tension Indicator

An instrument that is shaped like a lease rod and remains permanently in a loom to record warp tension has been announced by British Rayon Research Assn., Manchester, England.

The instrument has two parts connected by hinges. The lower part has a groove containing a liquid-filled rubber tube. Tension of the warp threads passing over and under the instrument exerts pressure and causes the liquid to rise in a glass tube.

The liquid level shows on a scale at the end of the loom and denotes the warp tension. Readings can be taken at any time without manual operation and without stopping the loom.

Circle T-8 on Reader-Service Card

Filament Counter

An instrument that will electronically count the number of filaments in a yarn has been announced by British Rayon Research Assn., Manchester, England.

The yarn to be tested is clamped in the instrument, and the operator merely depresses a lever to start the counting process. In just a few seconds, the total number of filaments in the yarn is shown on the electronic counter.

Circle T-9 on Reader-Service Card

SPINDLES

DRAPER

DRAPER

all-steel top drive anti-friction spindles permit better spinning at lower cost

Concave collar and washer design makes "plumbing" easier and faster. Spindle slippage is reduced to a minimum.

Welded construction eliminates possibility of doffer guards becoming loose.

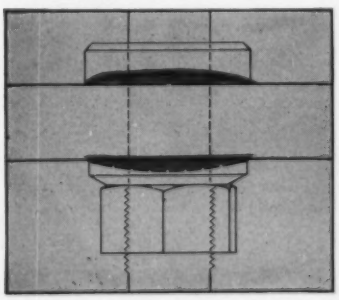
Incorporated whorl design permits easier removal of waste yarns when doffing and simplifies manual braking. Bolster life, spindle speeds and quality of yarn are all increased.

Power requirements, lubrication cycle, blade vibration and ends down are all reduced.

In addition . . . it's an accepted fact that Draper conforming fit maintains a more even bobbin line than any other Top Drive.

Let a Draper spindle specialist analyze your spindle needs today.

Concave collar and washer design makes "plumbing" easier and faster.



DRAPER CORPORATION

Hopedale, Mass.

Atlanta, Ga. *Greensboro, N.C.* *Spartanburg, S.C.*

For more data, write this page number on Reader-Service card. →

Screen-Printing Machine

An automatic screen-printing machine that can be fitted to handle up to 10 colors has been developed by Comerio Ercole, Busto Arsizio, Italy.

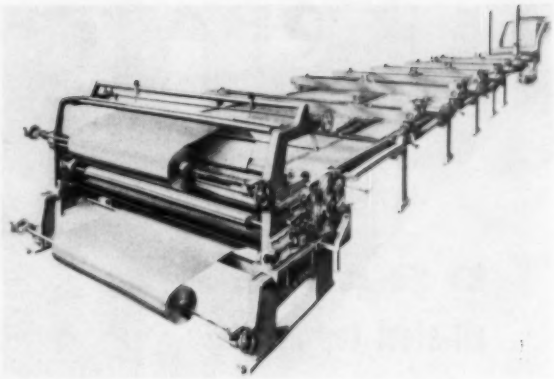
The cloth is transported on a gummed conveyor through the machine by a mechanism that is adjusted to suit each pattern repeat. Repeats up to 118 ins. are possible.

Production will vary with the number of colors but will average up to 2,500 yds. per day with two operators when four colors are being printed.

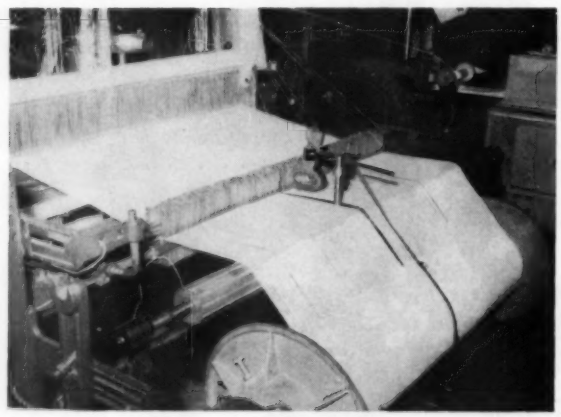
The squeegees are adjustable to give from one to four strokes with variable pressure to suit conditions, and the stroke can be set to suit the size of the screen. The screens are lifted by a cam motion at the end of the final squeegee stroke.

Controls are centralized in one cabinet. Each printing component can be controlled individually or operated simultaneously, with provision for adjustment of each unit when necessary.

A drying chamber is supplied to dry the printed fabric.



Circle T-10 on Reader-Service Card



Warp-Tension Balance

An instrument to show the relative tensions of top and bottom sheds in a plain weave has been introduced by British Rayon Research Assn., Manchester, England.

A number of ends from one harness are run over the top stud of the instrument, and an equal number of ends from the other harness are placed under the bottom stud. The loom is started, and readings are taken with the instrument resting lightly on the warp while the loom is running. The position of a pointer indicates the relative tension in the two sets of threads at any given instant.

Circle T-11 on Reader-Service Card

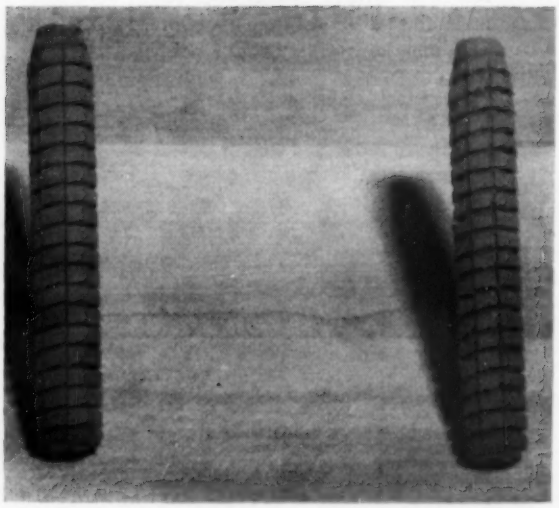
Improved Temple Roll

A synthetic-rubber temple roll to hold cloth more securely in the temple with less temple-top pressure is being manufactured by V. B. Splawn & Son, 310 Third St., Burlington, N. C.

The jagged-effect roll has eight V-grooves down the sides at regular intervals. Therefore each resulting block of roll covering is a separate unit that firmly holds heavy, hard-to-hold fabrics.

The roll is being used on both filament- and spun-synthetics fabrics. It is available in standard sizes or can be made to your own specifications.

Circle T-12 on Reader-Service Card



CHANGE to..... Stehedco

DRAWTEX HARNESS

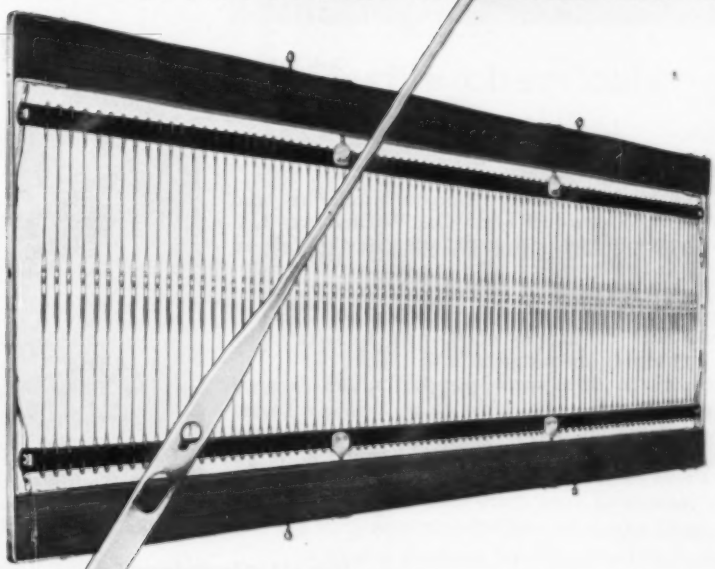
FOR TOP WEAVING EFFICIENCY

.... Proven for Over 20 Years

TYPE C-2 END BRACE

RIGID ROD HOOK

REMOVABLE ROD HOOK



Every weaver wants 100% production and no seconds... Stehedco Drawtex Harness brings you closest to that goal.

Stehedco Drawtex Heddles and Frames have revolutionized the textile industry with their efficient, trouble-free performance, greatly increased production and higher quality goods.

Stehedco Drawtex Heddles are made of the finest quality spring steel, highly polished to handle your most delicate yarns. The exclusive spring effect guarantees quick and easy drawing in by hand or machine.

One heddle size can be used for a much wider range of yarn sizes and constructions, and every heddle is a repair heddle which can be added or removed at any position on the frame.

Stehedco Drawtex Frames are made of select fir lumber, straight and knot-free. The new type C-2 end brace rigidly clamps the heddle rods so that there is no wear on either the brace or the rods. The rods may be removed by slight pressure of a screwdriver, and as easily replaced.

Only Steel Heddle offers you both the rigid rod hook and removable rod hook, giving you a choice to suit your particular needs. They eliminate all warp streaks frequently caused by the bunching of heddles at conventional type rod supports.

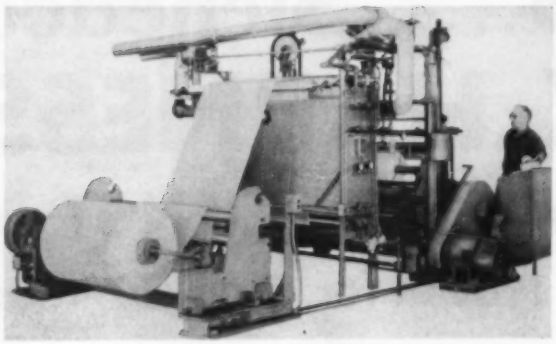
Ask our qualified Field Engineers for samples and additional information.

Stehedco
STEEL HEDDLE MFG. CO.
PHILADELPHIA 32, PA.
SOUTHERN SHUTTLE DIV.
GREENVILLE, S.C.
Southern

F-5716

OTHER PLANTS AND OFFICES: GRANBY, QUEBEC, CANADA • LAWRENCE, MASS. • GREENSBORO, N.C. ATLANTA, GA. • TEXTILE SUPPLY CO., DALLAS, TEXAS • ALBERT R. BREEN, CHICAGO, ILL.

For more data, write this page number on Reader-Service card. →



Web Conditioner

A conditioner that adds moisture in controlled amounts to textiles and other web materials has been announced by J. O. Ross Engineering Corp., 444 Madison Ave., New York, N. Y.

The web conditioner is a steel enclosure slightly wider than the web to be conditioned. It is mounted in the path of the goods at any convenient location, and the web travels vertically through it. Models are also available for horizontal web travel.

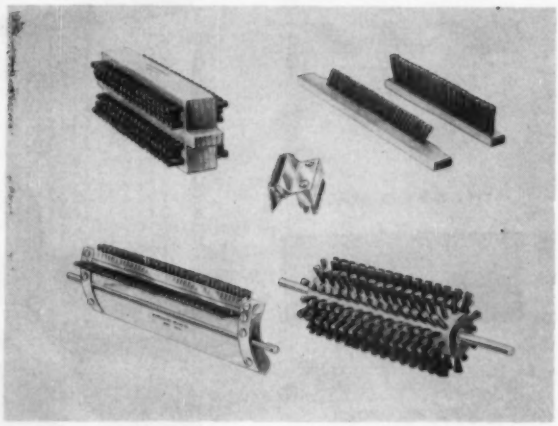
Circle T-13 on Reader-Service Card

Textile Brushes

A line of standard and special-purpose brushes has been introduced by Woonsocket Brush Co., Woonsocket, R. I. The brushes have Plexiglas-mounted nylon bristles designed especially for textile applications.

The brushes are available in standard designs for use in the upper and lower faller section, pressure roll, nip roll, and coiler-head mechanism of Warner & Swasey pin-drafter intersecting draw frames.

There are also three special-purpose brushes designed for pin-drafter applications. Included are a coiler calender-roll brush with spring tension holder; a two-sided top pressure-roll brush; and a sectional under-clearer brush for insertion beneath the pin drafter's nip-roll unit.



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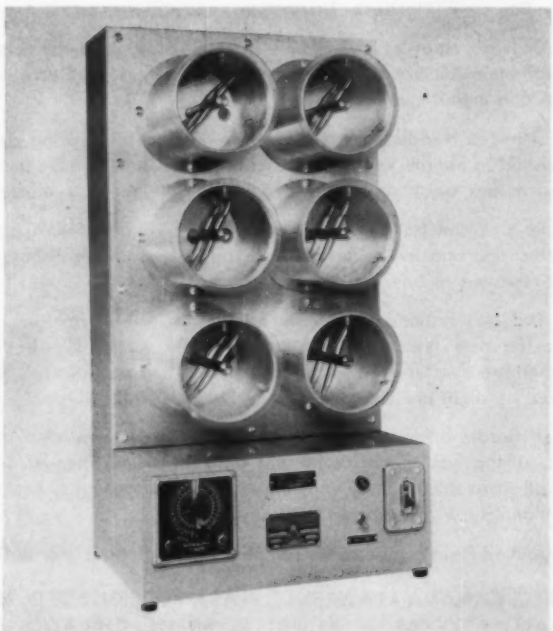


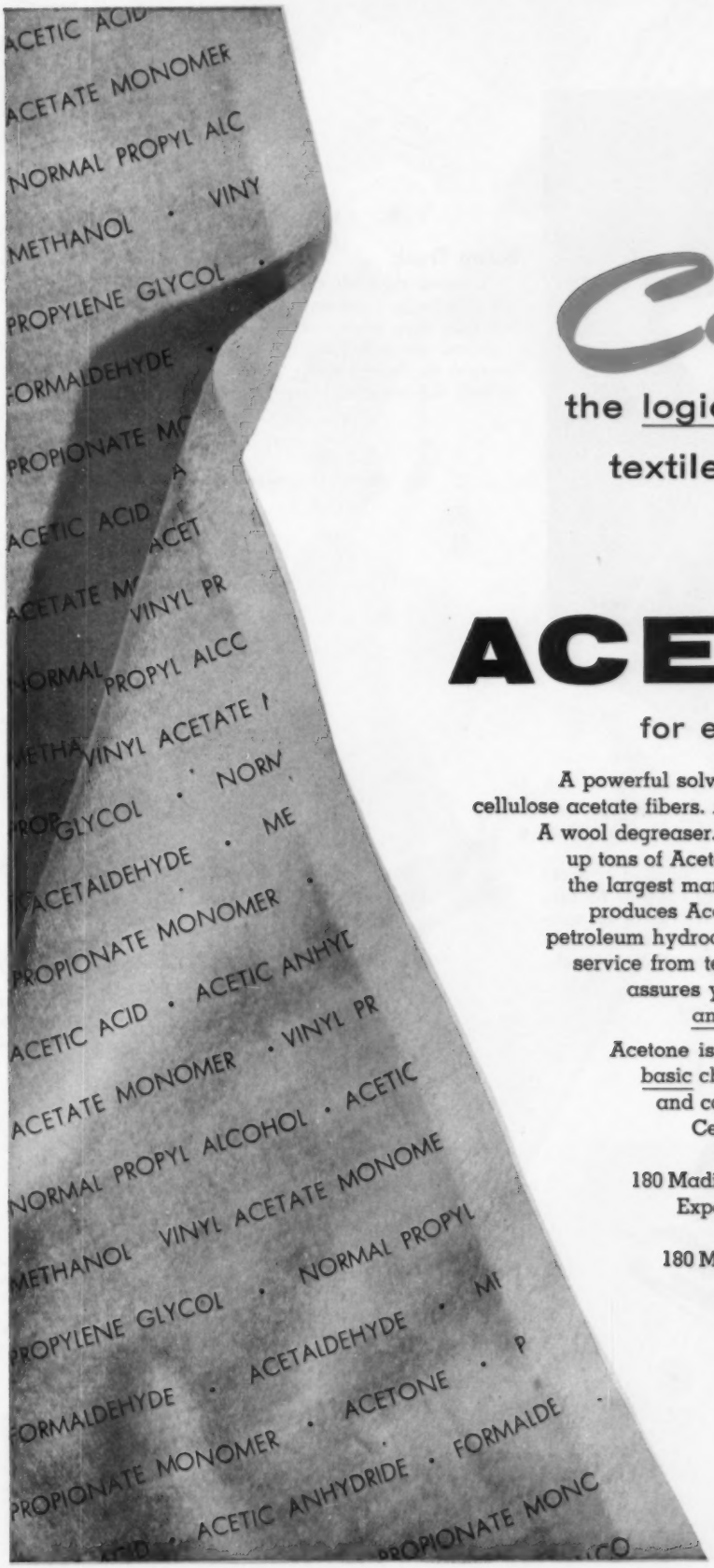
Pilling Tester

A random tumble pilling tester has been announced by Atlas Electric Devices Co., 4114 N. Ravenswood Ave., Chicago 13, Ill.

The instrument produces pills or fuzz that correlate well with actual end-use performance in respect to the number, size, and appearance of the pills. The recommended test procedure produces results in a 1-hr. test that are equal to 300 hrs. of actual wear.

The machine is available with two, four, or six test chambers per machine and requires 12½x18½ ins. of laboratory bench space.

Circle T-15 on Reader-Service Card



Celanese

the logical source for textile chemicals

ACETONE

for example...

A powerful solvent basic to the manufacture of cellulose acetate fibers. A constituent of fabric coatings. A wool degreaser. These textile applications soak up tons of Acetone each year. Celanese, one of the largest manufacturers of textile chemicals, produces Acetone by controlled oxidation of petroleum hydrocarbons. Our complete shipping service from terminals and distribution points assures you of prompt Acetone delivery anywhere... anytime you need it.

Acetone is just one of the growing list of basic chemicals produced by Celanese and consumed by the textile industry.

Celanese Corporation of America,
Chemical Division, Dept. 571-S,
180 Madison Avenue, New York 16, N. Y.
Export Sales: Amcel Company, Inc.
and Pan Amcel Company, Inc.,
180 Madison Ave., New York 16, N. Y.

Celanese®

Celanese CHEMICALS

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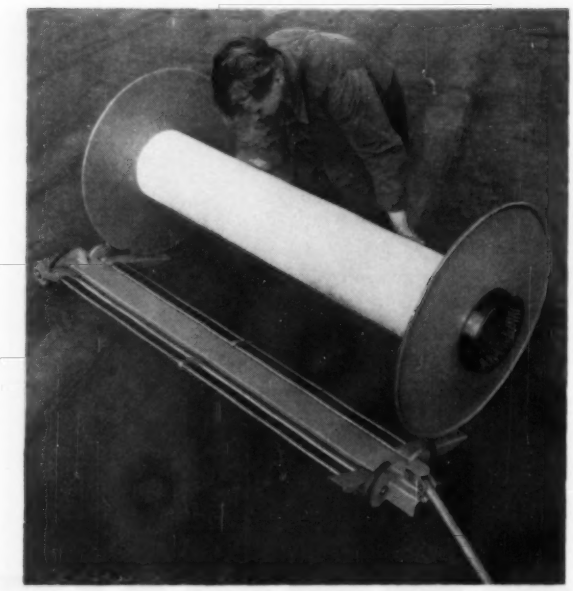


Beam Truck

A beam truck developed by W. Schlafhorst & Co., M. Gladbach, Germany, is a small but effective aid in handling warp beams.

Beams are rolled on the truck on outriggers that are lowered to form a ramp. The outriggers are then lifted to hold the beam on the truck for safe transportation.

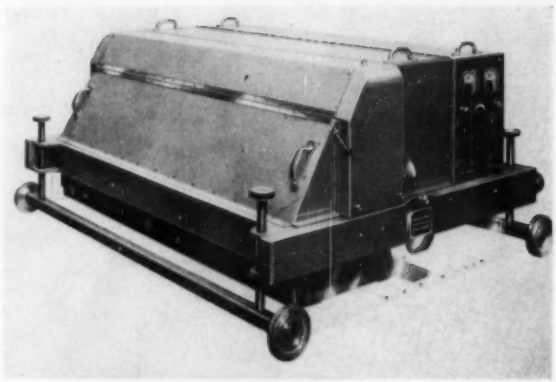
Circle T-16 on Reader-Service Card

Flock-Printing Machine

A flocking machine produced by Arno H. Wirth Maschinenfabrik, 67 Heilbrunnen St., Reutlingen, Germany, is designed to work with flakes of resin rather than fiber flock.

The machine employs the electrostatic method of flocking and is equipped with the necessary controls to vary voltage and rate of deposition of flock. Flakes of resin cut from 0.5 to 1 mm. are used to produce velvet- or chamois-like surfaces on textiles, paper, or other materials.

Circle T-17 on Reader-Service Card



Air-Powered Strapper

An air-powered stretcher and cutter for heavy-duty strapping operations has been developed by Brainard Steel Div., Sharon Steel Corp., Warren, Ohio.

The tool weighs only 12 lbs. but will strap heavy pallets, skids, and bundles. It operates on any flat stock or package.

Circle T-18 on Reader-Service Card

A WINNING MOVE

SMITH, DRUM & COMPANY now in the Turbo family of Textile Finishing Equipment

Now Turbo is your headquarters for the complete line of Smith-Drum dyeing and finishing machinery — manufacturing, sales and service. Headquarters, too, for research, development and even greater progress in the Smith-Drum machines of tomorrow. For at Turbo, Smith-Drum engineering and production will be able to deliver to Smith-Drum customers a broader, and more dynamic service than ever before.

TURBO

TURBO MACHINE COMPANY
Lansdale, Pa.
Turbo, Smith-Drum, Brewin Machines

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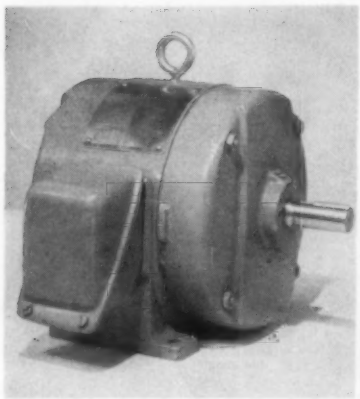


Textile Motor

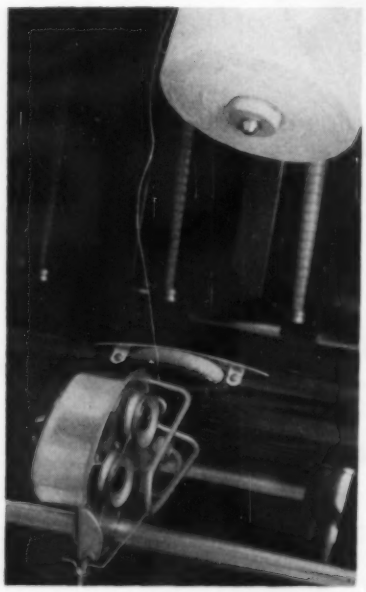
An enclosed, nonventilated textile motor that is claimed to be virtually maintenance-free has been developed by General Electric Co., Small Integral Motor Dept., Schenectady 5, N. Y.

Designed for such applications as pickers, cards, spinning and roving frames, spoolers, warpers, and slashers, the motor, called the Tri-Clad 55, is smaller and lighter than the screenless open textile line of motors it replaces.

The new design minimizes fire hazards by preventing lint from coming into contact with the windings. Lint cleaning is almost eliminated. The cast-iron construction of the motor resists any physical damage.

The Tri-Clad 55 motors are available in 2- and 3-hp. models that operate at 1,800 rpm., and in 1½, 2, and 3 hp. at 1,200 rpm.

Circle T-19 on Reader-Service Card



Oiling Device for Winders

An oiling device announced by W. Schlafhorst & Co., M. Gladbach, Germany, is installed on the Autocopser ASE. Yarn runs from the package over an oil-impregnated wick.

As the yarn leaves the package, it strikes lightly against the wick. The yarn and all yarn-guiding elements are moistened with oil.

Bleached and colored yarns that have lost their natural lubricants can then be run at high winding speeds.

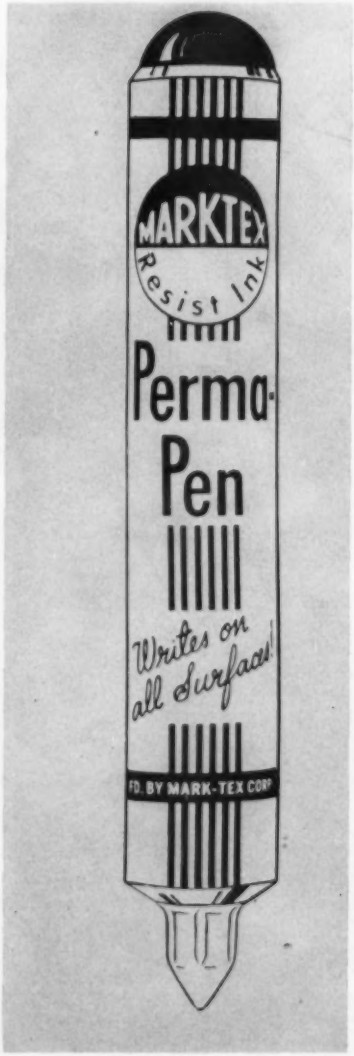
Circle T-20 on Reader-Service Card

Mounted Magnifier

A 4-in. +5 Diopter magnifier has been announced by Edmund Scientific Co., Barrington, N. J. The magnifier has a swivel clamp that can be attached to inspection tables, machine tools, or wherever precision viewing or setting is required.

The larger lenses permit you to use both eyes so that a three-dimensional effect is obtained. The all-metal mount can be easily adjusted to any position.

Circle T-21 on Reader-Service Card



Marking Pen

A textile-marking pen is available from Mark-Tex Corp., 453 W. 17th St., New York 11, N. Y. The pen consists of a noncollapsible, nonbreakable, leakproof tube equipped with its own marking point.

Available with a variety of colors of ink, the Perma-Pen will make permanent marks on all fabrics, of either synthetic or natural fibers. Each pen contains enough ink to mark 10,000 characters 1 in. high with bright, legible, permanent marks.

Circle T-22 on Reader-Service Card

CONTINUED ON PAGE 240

CS_2 AND SODIUM Hy

Stauffer is a major source of supply of these essential textile chemicals. Stauffer was the first – is still the largest – producer of Carbon Bisulfide.

Carbon Bisulfide of purity exceeding 99.99% is shipped in tank cars of 5,000, 8,000 and 10,000 gallons from Bentonville and Roanoke, Va., Lowland, Tenn., LeMoyne, Ala., Chester, Pa., and Perry, O. (Drums of 5, 10 and 55 gallons from LeMoyne, Monongahela, Pa., and Richmond, Calif.)

Sodium Hydrosulfide in aqueous solution of high purity and highest practical concentration is now available in tank cars of 8,000 and 10,000 gallons from Chester, Pa., Roanoke, Va., Lowland, Tenn., and Dominguez, Calif. Also in 55-gallon drums from Chester and Dominguez, and in tank trucks from Dominguez.

For a continuous, dependable and flexible source of supply, make your arrangements with Stauffer.

stauffer means service

STAUFFER CHEMICAL COMPANY

380 Madison Avenue, New York 17, N. Y.

Prudential Plaza, Chicago 1, Ill. • 636 California Street, San Francisco 8, Calif.

Stauffer CHEMICALS SINCE 1885

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NEW DYES AND CHEMICALS

Dye Fixative

Atcofix 90 . . . is a resin-based cationic dye fixative for direct colors that may be applied by exhaustion methods or padding. The product improves washfastness of many direct colors and may be used with most thermosetting resins. In addition to improving the washfastness of colors, the material produces a moderately firm hand on fabrics to which it is applied. Metro-Atlantic Inc., Centredale, R. I.

Circle D-1 on Reader-Service Card

Chlorine-Resistant Resin

Chlordare . . . a resin designed for producing durable finishes on cotton fabrics, has the property of being resistant to chlorine as applied in the usual laundering methods. Fabrics finished with the product do not lose tensile strength or turn yellow on ironing after laundering with chlorine. Metro-Atlantic Inc., Centredale, R. I.

Circle D-2 on Reader-Service Card

Nylon Scour

Nyl-Scour ASD . . . removes processing oils and sizing materials from nylon fabrics and reduces the tendency of the fiber to yellow in subsequent processing. The product is applicable to jig or dyebeck scour baths. Aquex Development & Sales Corp., Whippany, N. J.

Circle D-3 on Reader-Service Card

Vat Dye

Algol Brilliant Blue 4G Infra Paste and **Algol Brilliant Blue 4GWP Powder** . . . are two forms of a greenish-blue vat dyestuff recommended for producing very bright shades on cellulosic fibers. The dye exhibits excellent lightfastness but is not fast to chlorine and only moderately fast to atmospheric oxidizing influences. General Dyestuff Co., Div. of General Aniline & Film Corp., 435 Hudson St., New York 14, N. Y.

Circle D-4 on Reader-Service Card

Reactant Resin

Warcoset LCR . . . produces chlorine-resistant finishes on cotton fabrics that are durable to laundering. The product has a minimum effect on the lightfastness of dyes and imparts crease resistance and shrinkage control to cellulosic fabrics. Warwick Chemical Co., Div. of Sun Chemical Corp., 10-10 44th Ave., Long Island City, N. Y.

Circle D-5 on Reader-Service Card

Dye Carrier

Carolid . . . developed especially for dyeing Dacron and blends of Dacron with other fibers, forms true solutions with water and is exhausted onto the fiber. Level, well-exhausted dyeings on Dacron, Darlan, Dynel, Verel and other hydrophobic fibers can be obtained by the aid of this carrier. Tanatex Corp., Belleville Turnpike, Kearny, N. J.

Circle D-6 on Reader-Service Card

Producing Durable Antistatic Finishes

Two methods of increasing fiber conductivity and thus lessening static generation appear open—either modify the entire fiber, which would probably render it hydrophilic and nonshape-retentive, or modify the surface with a conducting layer of a hygroscopic material. The second way was chosen because of the following conclusions:

1. The correlation between resistivity and tendency to generate static is close enough to indicate that differences in the method of generation are not important.

2. The generation of static charges is probably dependent on the ultimate or monomolecular surface layer. Because of the unavoidable contamination of surfaces, control of the ultimate surface layer in manufacturing seems to be impossible.

Hygroscopic materials that are suitable for the purpose of increasing the conductivity of the surface layer are fairly common, but the problem was to find one that was insoluble after application so that the antistatic effect would be durable.

How Requirements Were Met

These contradictory requirements were met by using polymeric electrolytes that are hygroscopic in their insoluble state. These materials remain soluble as long as the molecular chains grow by adding new links at each end; but when the units combine on three or more junction points, an insoluble three-dimensional molecule is formed. The same mechanism is set up in thermosetting resins and the vulcanization of rubber.

The polyelectrolytes not only retain their hygroscopicity from cross-linking but are also capable of splitting off ions that dissipate static charges.

A material selected for durable antistatic purposes must not affect the hand or color of the fabrics to which it is applied; and it must be easily handled in the plant and be reasonable in cost.

Two products that satisfy these conditions have been marketed by Onyx Oil & Chemical Co. as Aston LT and Aston 108. They are defined as nitrogeneous anion-exchange resins in the cured state and exhibit the desired properties of retaining their static-dissipating effects on fabrics after 20 to 80 washings in Tide at 140° F. for 40 mins. Some methods of dry cleaning may reduce the antistatic effect.

How Materials Are Applied

Aston LT and Aston 108 are applied from water solutions to give 0.5 to 3.0% add-on. An average application would produce 2% of Aston LT or Aston 108 on the goods, which should be dried at 210° F. and cured for 3 mins. at 300° F. The fabric should be rinsed and dried after treatment and can then be expected to retain its antistatic properties through 20 to 80 washings previously described.

Durability to laundering is affected by a number of factors, including the type of fiber, the amount of antistatic agent applied, the ratio of antistatic material to cross-linking agent, the pH of the treating bath, and the effectiveness of the curing operation.

From a paper by Dr. Emery I. Valko, Research Director, Onyx Oil & Chemical Co.

Dare you do this with the Cleaner *now used in your plant?*

DROP A CIGARETTE IN IT?

Many cleaners still in use are highly inflammable. Their use is a constant hazard. IMMUNOL, on the other hand, is *absolutely* safe for use under all conditions.

YOU CAN WITH IMMUNOL

WASH WITH IT?

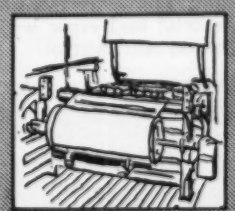
This is not common practice, however, no matter how long workers' skin contact IMMUNOL solutions, there is no danger whatsoever of discomfort or irritation.

YOU CAN WITH IMMUNOL

INHALE THE VAPOR?

Many cleaners are highly toxic, not so with IMMUNOL. It is odorless, non-toxic and positively harmless to personnel regardless of conditions of use or exposure.

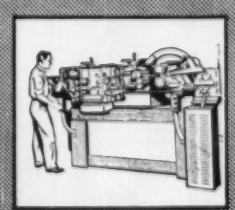
YOU CAN WITH IMMUNOL



ALLOW IT TO DRY ON METAL?

Other cleaners promote rust but never IMMUNOL. It leaves an invisible protective rust proof surface without oily residues. No need to wipe it dry . . . that's one less operation.

YOU CAN WITH IMMUNOL



USE IT WHILE MACHINE RUNS?

IMMUNOL removes dirt, soil, oil, grease, size and mill film with complete safety to personnel, equipment and fabric (providing the fabric is not affected by plain water).

YOU CAN WITH IMMUNOL

PROVEN BY 11 YEARS OF CONTINUOUS USE IN LEADING MILLS.

IMMUNOL

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IS PRACTICAL FOR USE IN THESE OPERATIONS

Bleaching	Equipment	Rust Proofing
Blending	Finishing	Slashing
Boarding	Full Fashion	Spinning
Carding	Inspection	Spooling
Circular Knitting	Knitting	Throwing
Cleaning	Maintenance	Tricot
Combing	Opening	Tufting
Dyeing	Packaging	Twisting
Drawing	Picking	Warping
	Printing	Weaving
	Roving	Winding

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ORIGINAL COLLOIDAL LUBRICANT

For synthetic and natural yarns
Original colloidal stock lubricant
Binds fibres together without being sticky
Eliminates neps and pilling
Will not "load" or "gum" cards
Adheres uniformly to all fibres
Is an anti-static lubricant
Reduces fly
Increases tensile strength
Applied with tint

ASK FOR FREE TESTING LOT

FREE SAMPLE furnished on request. Try the above tests with IMMUNOL . . . Try it in your plant. See how you can benefit.

IMMUNOL'S effectiveness, versatility, safety features and low cost will satisfy the most demanding requirements.

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THIS IS NO. 124 OF A SERIES ON

GETTING THE MOST FROM TWISTING

Information about twisting designed to show improvements in twisting equipment and new ideas in the twisting operation.

HOW TO OBTAIN GOOD TENSION CONTROL ON A RING TWISTER

Every textile manufacturer is well aware of the fact that uncontrolled tension variations during ring twisting result in high non-uniformity in twist, ends down, broken filaments and shiners. Until recently only the average tension could be measured, which gave little indication of the amount and cause of tension variations.

Now, new horizons in cost reduction and quality improvements are being opened up by an instrument that measures and records high speed tension variations — the Brush Tension Analyzer.

Even problems concerning spindle speed limitations and twist uniformity which may seem mechanical in nature and separate from tension behaviors may be studied and improved through tension measurements. For example, intermittent slippage at the feed roll or varying spindle speeds, which often are the causes of uneven twist, will show up in tension variations. The cause of excessive traveller wear, which may be the use of the wrong traveller or too high a spindle speed, often can be established quickly by tension studies.

While completely eliminating tension variations on a ring twister seem out of the question, reductions in tension variations of more than 50% are often possible. (See charts.)

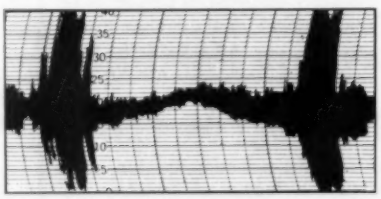
Tension studies on the yarn between the creel and feed rolls permit quick and accurate appraisal of the shapes, sizes, types, and positions of supply packages to obtain minimum plucking and balloon variations. These studies can also be used to select tension devices, types of guides as well as their positions to achieve minimum variations in tension as the individual ends go into the feed roll area. Tension studies made between the feed rolls and take-up package permit quick and accurate appraisal of:

a. The best ring and traveller combination for each construction.
b. Proper positioning of centering eyes.
c. Proper plumbing and alignment of spindles.
d. Optimum speeds.
e. Optimum traveller changing cycles.
f. Optimum bobbin types and sizes.
g. Satisfactory feed roll wraps.

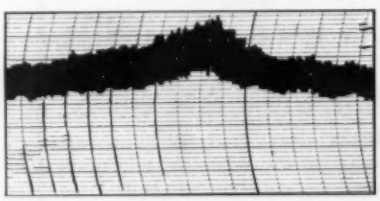
Some of the above factors once selected may cover a wide range of constructions. Others may differ for every construction.

With new constructions and new yarns constantly confronting the mill, trial and error methods are no longer adequate. The Tension Analyzer replaces trial and error with scientific selection and control.

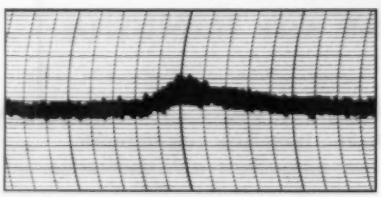
Charts showing tension pattern on Model 10 Ring Twister



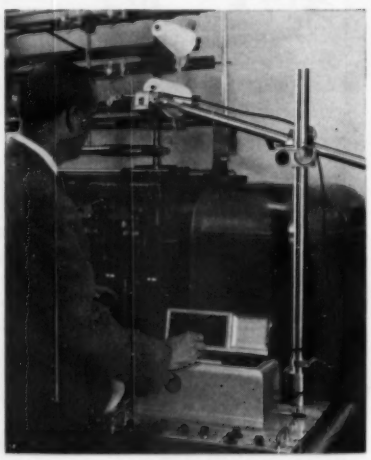
Improper Positioning of Centering Eye



Bad Traveller



Good Pattern



Use of Brush Tension Analyzer for Checking Tensions on Model 10 Ring Twister being demonstrated by R. H. Wallace, Manager Instrument Section, Universal Winding Company.

Sept. 1957 — 23.7.5

Winding and Twisting Machinery for Natural and Synthetic Yarns

UNIVERSAL WINDING COMPANY

LEESONA

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Do you need help on a technical problem? TEXTILE WORLD is at your service in helping solve problems in yarn manufacturing, weaving, knitting, dyeing, finishing, and other textile operations. A large staff of mill men, consultants, and other experts are available for authoritative answers. Send your problem to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Most Cotton Knitted Fabrics Are Bleached in Kiers

Technical Editor:

What are the usual procedures for bleaching cotton knitted fabrics? (1320)

The fabric is assembled into bleach lots in the gray stock room and trucked or pulled through porcelains to the bleach house. Knitted goods are not singed; and because knitting yarns are not sized, quetsch boxes are not generally used.

Most knitted goods are bleached in open-type kiers, although some bleaching is now done with continuous bleaching units. These units, however, require a volume of about 6-million lbs. per year; so they are restricted to large producers.

For kier bleaching, the rolls are sewed end to end and run through a continuous wet-out tub and into the kiers. This tub usually contains soda ash, a wetting agent, and a sequestering agent. An optical agent may be applied at this stage in the kier or in the final rinse.

Hydrogen peroxide or sodium peroxide are the usual bleaching chemicals. A general formula might contain peroxide, sodium silicate, borax, Permaclear, soda ash, and various wetting agents.

At the conclusion of bleaching, the final rinse may be given in the kier or in subsequent wash boxes. The fabric may contain 150 to 200% moisture at this stage; so it is extracted and trucked to the finishing section.

Choose Correct Materials for Silk-Screen Printing

Technical Editor:

We have been making patterns by the Lyonaise method of silk-screen printing. The gelatin becomes hardened in the small details of the drawing and does not come through. What can we do? (1303)

The base material of the screen should be chosen for the work at hand. Silk bolting cloth was originally used for the screens; but nylon, Dacron, and Dynel are sometimes chosen because they are more durable to wear and chemical action. Stainless-steel and bronze-wire cloths are also used.

For patterns with fine lines, a screen fabric should be more closely woven than one that is suitable for large, indefinite designs. Textile materials should be well shrunk before use; otherwise the shrinkage caused by washing out the exposed gelatin may affect the pattern register.

If gelatin is to be used for the coating, only the highest grade of gelatin, preferably in sheet form, should be used. Ground gelatin from reliable sources may be adequate, but it is easier to degrade the ground product with a portion of inferior material than is possible on sheet stock.

The choice of a sensitizer is generally limited to potassium bichromate, to which ammonium or sodium bicarbonate may be added to reduce acidity. To overcome the brittleness that is caused by the alkalis, a small amount of glycerine may be added to the mix.

The advantage of the alkalis is that they permit easier removal of the light-fixed gelatin when the pattern is no longer useful. The gelatin solutions are made up at a concentration of about 50% gelatin and 50% water. Recently introduced compounds based on polyvinyl chloride or polyvinyl acetate do a good job.

How Asbestos Is Made Into Yarn

Technical Editor:

Do you have any information on processing asbestos into yarn? (1315)

Two classes of asbestos mineral are used for textiles. They are serpentine and amphibole. A fibrous form of serpentine mined in Canada is called chrysolite, and a variety of amphibole called crocidolite comes from South America and Australia.

Asbestos for textiles is divided into two groups. The No. 1 group has fibers $\frac{3}{4}$ in. or longer, and the No. 2 group has fibers $\frac{3}{8}$ to $\frac{3}{4}$ in. long. Both groups are used alone or blended together in various proportions.

The crude fibers are crushed in pans to free them from rock, dust, and short fibers. A machine called a fiberizer removes further trash and sand and opens the fiber to be passed over a vibrating screen where rock and dust are again sifted from the mass.

If cotton is blended with the asbestos, blending is done in the next operation, where a maximum of 20% and a minimum of 5% cotton is used in the blend. Cotton makes spinning less difficult. Low cotton content requires long-staple asbestos.

For fine yarns, $1\frac{1}{8}$-in. Peruvian cotton is best for blending, and 1 to $1\frac{1}{8}$-in. Upland cotton is used most for average yarns. Chrysolite asbestos has better spinning qualities because it is curly.

The blends are processed on cotton cards, which remove more trash and short fibers. A second carding is often given to the fibers to produce a stronger yarn. From this card, the fiber falls on an apron and goes to a scrapper, where it is condensed into a roving and drawn on jack spools for mule spinning. This yarn is doubled and drawn on spools for weaving.

For singles yarn, the roving operation is eliminated and the fibers are drawn over a doffer roll onto spindles for ring spinning. Asbestos yarns are counted on the cut system, which is based on the number of 100-yd. lengths in 1 lb.

How To Convert Wool Size to Denier Readings

Technical Editor:

What diameter nylon filaments are equal to 60s and 64s Merino wool? (1322)

Here is a table showing a comparison between denier size and a range of wools graded to Bradford Standards:

Wool	Denier
80s Merino	— 3.75
70s Merino	— 4.33
64s Merino	
60s Merino	— 5.91
58s Crossbred	— 7.5
50s Crossbred	— 10.55
48s Crossbred	— 14.45
40s Crossbred	— 15.58

Use 4.2 to 4.4 Micronaire Cotton for Hosiery Yarns

Technical Editor:

What cotton is used most to spin hosiery yarns up to 40s? What speeds and settings are best for the cards? (1318)

The cotton used most for spinning hosiery yarn up to 40s is Delta 1⅛-in. Middling or Strict Middling. The average Micronaire reading will vary with a particular mill's buying methods and its particular thoughts on fiber fineness.

However, we believe that most mills will try to get an average Micronaire reading of 4.2 to 4.4. We recommend that range. The important thing is that the finest acceptable fiber be 3.7 or coarser and that the coarsest Micronaire reading be 4.8 and finer.

There are no special settings required on cards for this type of cotton and yarn. If the cotton is to be spun into combed yarn, we recommend that card production not exceed 7 lbs. per hr.

The flats should be set between 0.007 and 0.010 in. The closer the settings, the better results you'll get; but the settings will depend on the condition of the cards and the stability of the floor. Some mills can hold a 0.007-in. setting, and others cannot hold a setting any closer than 0.009 or 0.010 in.

Humanics — A TW Brief

How To Lose Good Spinners

Mary Jones was dexterous and could piece up ends as fast as any other spinner in the department. But she was slow moving, and it took a long time to make a complete circuit of her job of eight frames.

Another job on different yarn and consisting of only five frames became available. The second hand, Blair Evans, decided to try Mary on this smaller job. He felt sure she would be glad to make the change because the new job required only about half as much walking and actually paid more in wages.

Blair didn't say anything to Mary about the proposed change, intending to surprise her. However, he did tell Millie Jenkins, a spare hand, to report next day on Mary's job.

At the beginning of the shift Millie went on her new job, but Mary didn't show up. Mary had always been a regular worker, and Blair couldn't understand her absence. He dropped by to see her after work and was told that she was not at home.

"She has a job in another mill," Mary's mother told Blair. "Millie Jenkins told her that she was taking over Mary's job today; so she figured you were going to fire her. She heard they were needing spinners in another mill and went over there this morning. She called awhile ago and said she had a new job."

So Blair Evans lost a good spinner because he didn't observe an important rule of supervision:

Don't make any changes affecting an employee's job without letting the employee know in advance the reasons for the change.

Nonionics Are Now Used To Scour Wool

Technical Editor:

What are the prevailing procedures of scouring domestic fleece wool? (1317)

Most raw wool is scoured today with synthetic detergents, although some plants prefer to use soap. With soap and many synthetic detergents, alkali such as soda ash is used along with the detergent to scour the wool.

Three classes of synthetic detergent are normally used in conjunction with soda ash for scouring wool. These detergents are alkylarylsulfonates, amine condensates, and nonionics.

Certain nonionics are the latest development in the scouring of raw wool. The detergent does the work without the aid of the soda ash.

How To Get Good Plating On Stretch-Cotton Socks

Technical Editor:

What can we do to improve the plating on wool and cotton stretch socks? (1295)

To get good plating on stretch wool and cotton socks, you must take all the stretch out of the nylon yarn before knitting it if you want the nylon to go to the back of the fabric. To do so, you must put a fairly heavy tension on the nylon.

If you want the nylon to appear on the face of the goods, apply only light tension on the nylon. Delivery of the nylon from the cones often hampers good plating because a tightly wound cone causes the yarn to stick and create more tension at that point. Some mills rewind the nylon yarn to get a softer package to clear up plating troubles.

Two Tips To Reduce Filling Bands in Ribbon

Technical Editor:

How can we prevent filling bands in 100-den. rayon ribbon? The bands seem to occur at filling changes. (1323)

You can relieve the problem to some extent by being sure the tension on each filling-winding unit is the same. Another way is to use bobbins of filling from one cone of yarn constantly in the same shuttle in your loom.

SOLVAY Activated Hydrogen Peroxide Process* Sets New, Higher Standards and Lower Costs for Cotton Bleaching

NEW! Lower Cost
NEW! Greater Purity
NEW! Higher Brightness
NEW! Longer Brightness Retention
NEW! Reduced Ash and Metals Content
NEW! Less Silica
NEW! Better Absorbency
NEW! Improved Dyeability
NEW! Hard Water Tolerance

* Patent has been applied for on the SOLVAY Activated Hydrogen Peroxide Bleaching Process. It is available to bleachers under royalty-free license. Further information available on request.

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Monochlorobenzene • Vinyl Chloride • Ortho-dichlorobenzene • Hydrogen Peroxide • Methylene Chloride • Carbon Tetrachloride

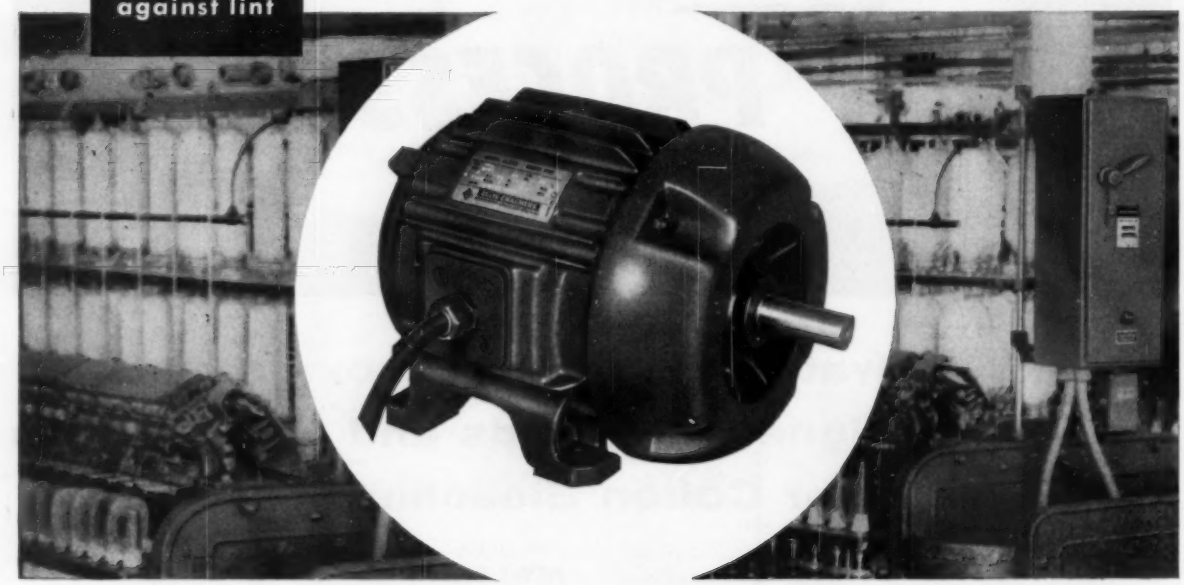
For more data, write this page number on Reader-Service card. →

Allis-Chalmers announces...

NEW totally-enclosed textile MOTOR

This modern, deep-rib frame has become a famous sign of high cooling efficiency in Allis-Chalmers TEFC motors. NOW — its tough dependability has been combined with lint-free features to make this motor just right for textile applications.

MORE protection against lint



Here are only a few of the TEFC motor features:

Ribbed Frame

Lint won't stick on this frame. Free-flowing air continually blows ribs clean.

Fan Bowl

Has no grid to collect fly and lint.

Optional Design

Permits placement of fan at shaft or front end of motor, and choice of conduit box or cable and fitting.

Find out more from your A-C sales office or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. Ask for Bulletin 51B6055C.

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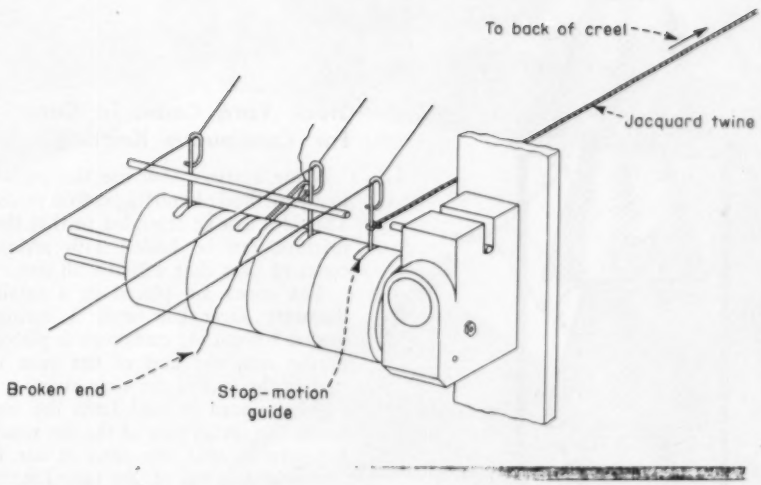


A Piece of Twine Reduces Warper Downtime

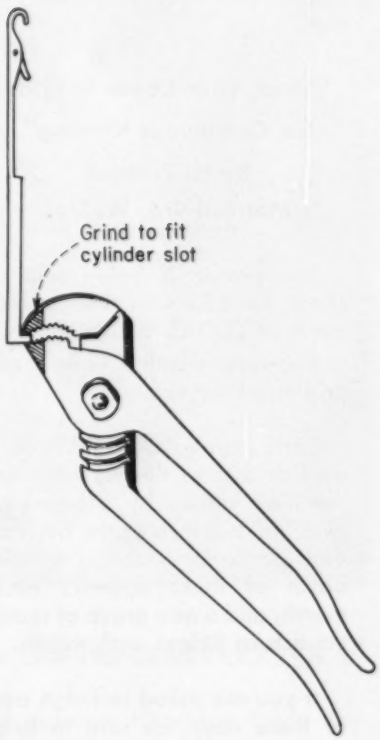
In our fancy-goods mill, we run many small lots of yarn at the warper. The operator keeps on hand a supply of cones and cheeses containing small quantities of yarn to replace packages as they run out.

When the last few sections are running, the warper frequently has to be stopped as the ends run out. This action formerly kept the operator busy running from the creel to the drum where he could stop the machine.

Often, he could not stop the warper before the end passed through the tension, various thread guides, the stop motion, the leese reed, and the warping reed. When this action occurred, the operator spent quite a lot of time getting the machine started up again and production was reduced.

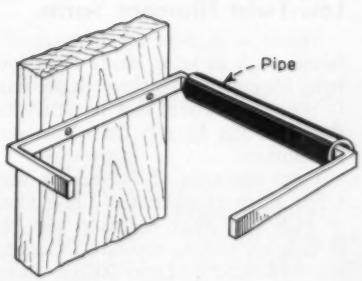
We overcame this trouble by tying one end of a thin piece of jacquard twine to the stop motion and the other end to the back of the creel. Now when an end is about to run out, the operator pulls the cord attached to the stop motion from wherever he happens to be standing, and the warper immediately stops running.

This simple device has greatly decreased warper downtime, and the operator's work is much easier. (K-3578) *H. Eiger, Israel-American Co., Tel-Aviv, Israel*



Here's a Quick Way To Remove Needles

Broken knitting needles can be removed easily with No. 420 channel-lock pliers that have had their jaws ground to fit the width of the slots in the cylinder. To remove a needle, force the end of the bottom jaw under the broken needle, squeeze the plier handle tightly, and pull out the needle. (K-3359)



Keep Air Hose Off the Floor With This Handy Hanger

A handy hanger for air hose can be made easily from a piece of ½-in. flat iron 40 ins. long. Bend the iron as shown in the sketch and drill two holes for attaching the hanger to a wall or post with screws.

Before the last bend is made in the hanger, insert a 12-in. length of pipe for the hose to rest on to protect it from the sharp edges of the flat iron. (K-3470)

Enclose Space Beneath Cleaners To Hold Waste

Our opening room used to be short of storage space for waste, and there was no room to build additional bins along the walls.

We solved the problem by enclosing the area beneath the Superior cleaners with light sheet metal. This previously wasted space makes roomy triangular-shape bins that hold all the waste from the cleaners. (K-3515) *Falls Mfg. Co., Granite Falls, N. C.*

July Prize-Winning Kink

The best Kink published in the July issue of TEXTILE WORLD, according to our reader-judges, was:

"Stack Yarn Cones in Cans for Continuous Knitting"

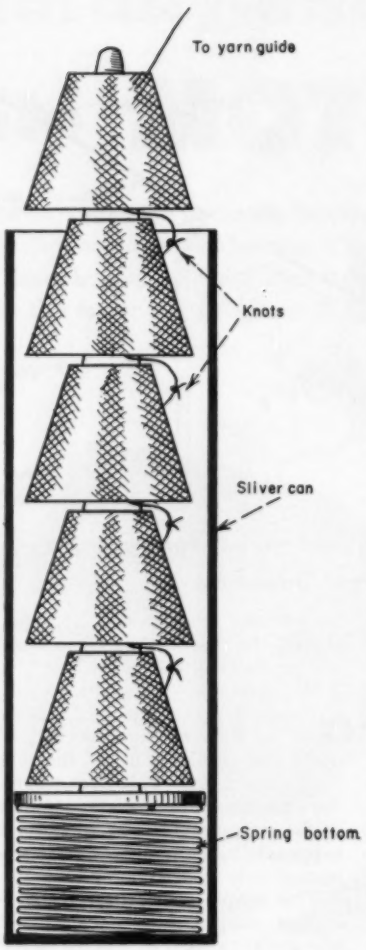
By H. J. Haas
Martinsburg, W. Va.

The winner is being sent a check for $25 with the compliments of TEXTILE WORLD.

The prize-winning Kink is reprinted at the right.

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 300 mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answers in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.



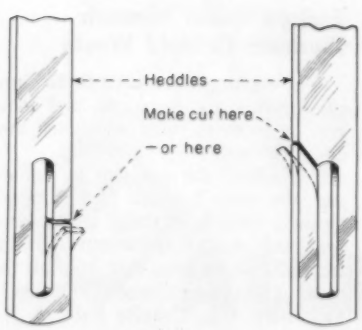
Stack Yarn Cones in Cans For Continuous Knitting

Many knitters now use the pigtail tie-up method of knitting cotton yarns. This idea can be extended so that the machine can be loaded with several cones of yarn that will last all day.

The cones are placed in a small-diameter sliver can with a spring-loaded bottom. As each cone is placed in the can, the end of the yarn is tied to the end of the cone above.

As the yarn is used from the top cones, the spring base of the can raises the yarn so that the cone in use is always at the top of the can. Empty cones are removed when the machine is knitting the heel or during the knitter's regular patrol.

The cans can be loaded at the start of the shift in the stock room and moved into position when the last cone on the first can has been nearly used. This method cuts machine downtime and yarn waste. (K-3260)



Make Emergency Repair With a Regular Heddle

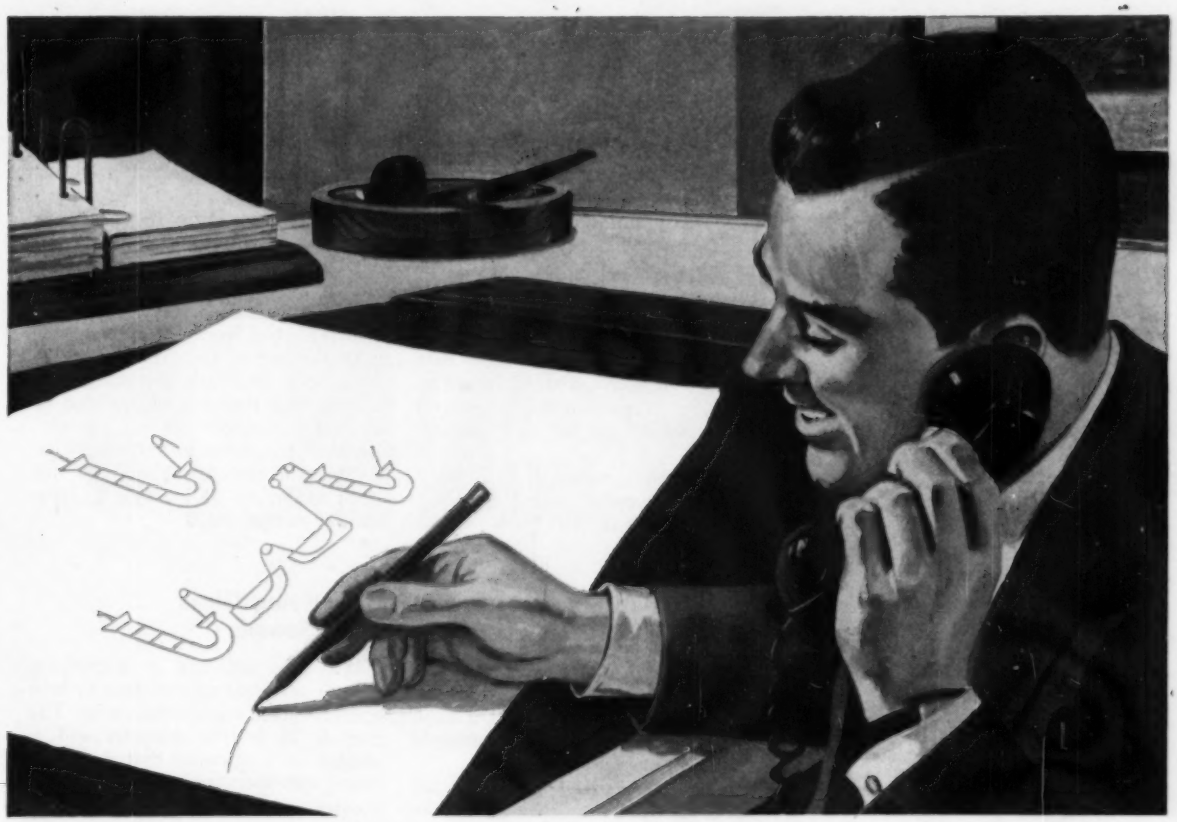
When a heddle breaks and a repair heddle is not available, a temporary repair can be made by using a regular heddle. Cut the heddle with scissors, as shown in the sketch. Either a straight cut or one that angles into the slot can be made.

Bend the arm out from the cut, place the eye on the heddle rib, and bend the heddle back into position. Fasten the eye to the bottom rib first. (K-3030) *Arthur Abbott, Berwick, Pa.*

Use Glycerine To Separate Low-Twist Filament Yarns

When it is necesary to analyze a fabric, such as satin, made from low-twist filament yarns, the ends are hard to separate. There is a tendency for the filaments to slip from one yarn to another.

I wet the ends of the sample with a few drips of glycerine. The fibers of each yarn stick together, and the threads are easy to separate for counting. (K-3291) *Leon Zeldis, Santiago, Chile*



What is Becco Continuous Bleaching?

Becco Continuous Bleaching is a process principle, on which various bleaching processes are based.

The process designed by Becco to meet your particular requirements may be *single-stage*, or it may be *multi-stage* – in any case it will be designed around a Becco-type J-Box, dry or wet system, which has proved itself in more installations than any other type.

It is the J-Box in which "*Nothing moves but the cloth.*" Time-proved features not available with other equipment include:

Easily accessible piling mechanism;
All moving parts in full view;
Uniform, thorough steaming.

Or – Becco Continuous Bleaching might also refer to the recently developed "short-time" open width process, for which equipment is now available.

Becco field engineers are trained specialists who can advise you which system to choose for your particular needs, discuss the relative merits of each, and what they will mean to you in terms of consistently high-quality work at the lowest production cost.

This is just one of many Becco services available to you – at no cost, no obligation.

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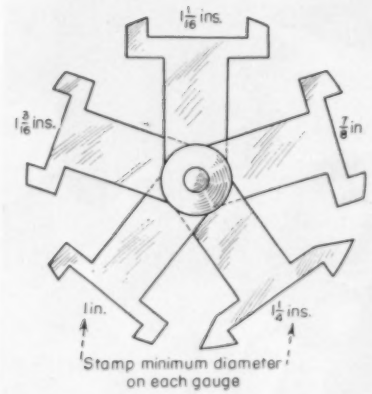


Gauge for Checking Rolls Prevents Bad Work and Waste

Top-roll cots gradually decrease in diameter from wear and buffing. When the minimum operating diameter is reached, ends down and unevenness increase and bad work results.

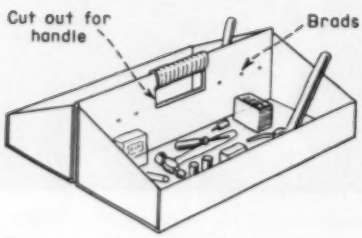
In our mill we have no special instruments to measure roll run-out. So we built a series of gauges that show us when a roll needs re-covering. The gauge consists of several small feeler gauges for each roll diameter.

These gauges, made of thin sheet metal, are loosely riveted together at the handles so that they can be folded into a small package and carried in a pocket.

Our supervisors use the gauge to make regular routine checks of all rolls on each frame. Frequently, rolls that appear to be all right are nearing the buffing limit; and unless they are re-covered, bad work will soon result.

Another use of the gauge is to spot check rolls that are producing bad work so that they can be replaced or repaired in a hurry.

Unless you have an instrument to analyze roll run-out, this gauge will prove invaluable. (K-3434) *I. J. Abraham, Warangal, India*



Make This Tote Box From a 5-Gal. Can

Take a 5-gal. metal can and cut it in half and fasten the pieces together as shown in the sketch. Cut a hand grip in the center and wrap it securely with tape to avoid hand injury.

Small tools, parts, and materials can be easily transported about the job with this tote box, which is especially useful to fixers. (K-3266) *Chas. H. Willey, Penacook, N. H.*

Magnifying Glass Helps Seamers

We have attached a magnifying glass to our seaming machines to help seamers thread the needles easier. The glass is 2½ ins. in diameter and is pivoted on a screw so that it can be swung into operating position near the needles when it is required.

When not in use, the glass is swung back to the side of the machine body. (K-3356)

$500 for Best Kink in 1957 - - - $25 for Best Kink Each Month

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What Is a Kink?

Any idea that will

- Cut costs
- Improve quality
- Reduce work
- Increase production
- Make work easier

The idea may be one for improving machines, some attachment for a machine, a short-cut way of doing something, a labor-saving device—any idea at all that helps a mill man run his job better or easier.

Send in your Kink now. There is always a contest going on.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1957.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 300 will be asked to select preferred Kinks in each issue. Their votes will select the best Kinks, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

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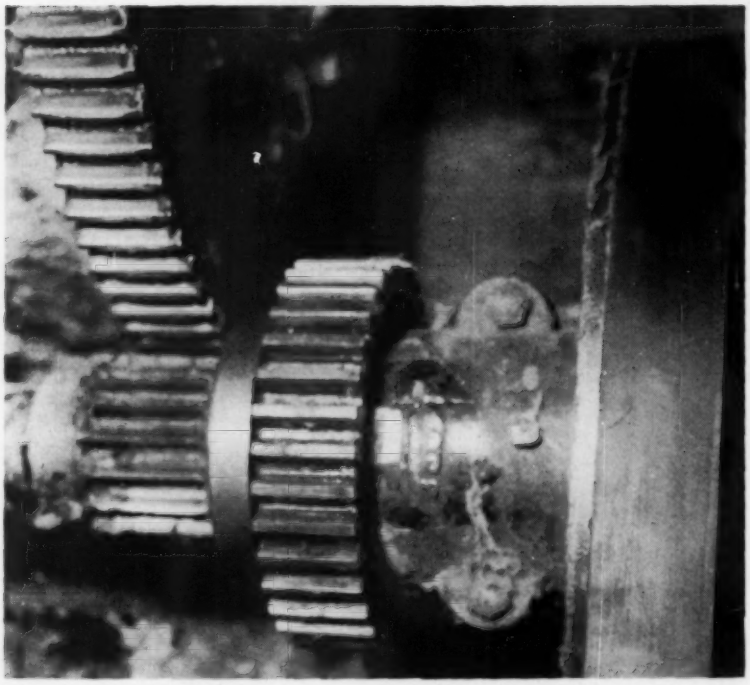
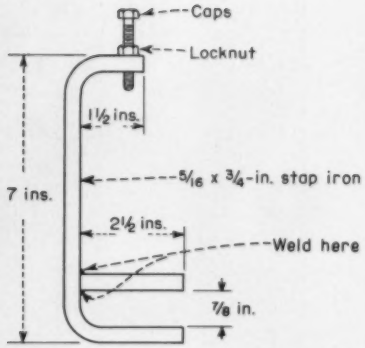


Small Teeth Cut Picker-Clutch Wear

The clutch on our picker used to wear out too fast because of the distance it had to travel. The widely spaced teeth did not always mesh properly and would sometimes break and cause picker downtime.

We stopped the trouble by replacing the wide teeth with small comber-type teeth. These teeth travel less than $\frac{3}{8}$ in. before meshing, and they wear almost indefinitely. (K-3514) *Falls Mfg. Co., Granite Falls, N. C.*



Gauge Makes It Easy To Level Ring and Spindle Rails

After aligning and leveling our spinning frames, we used to have trouble leveling the ring rail with the spindle rail.

We overcame the trouble by building a gauge as shown in the diagram. The gauge is made from $\frac{5}{16}$x$\frac{3}{4}$-in. strap iron, and the dimensions indicated are for the frames in our mill.

The gauge can be used on any standard spinning frame, but you may have to vary the dimensions slightly for some frames.

The gauge will enable you to quickly and easily check the proper distance between the ring rail and the spindle rail. (K-3549) *H. S. Rogerson, Edenton, N. C.*

Rawhide Binder Inserts Stop Shuttle Creep

Shuttles have a tendency to creep forward in the box cell on weaves where the shuttle is out of call for some time in 2x1 and 4x1 box looms. A rawhide plug in the binder will hold the shuttle in place.

Mark the position of the binder that corresponds with the detection-needle slot in the shuttle. Drill a small hole $\frac{1}{2}$ in. deep through the leather facing and wood binder about $\frac{1}{4}$ in. forward from the mark at the back end of the slot in the shuttle. Now cut or grind a groove $\frac{1}{8}$ in. wide and $\frac{1}{2}$ in. long, with the hole as the center.

Cut a strip of rawhide $\frac{1}{16}$ in. wide and $1\frac{1}{2}$ ins. long. Insert a small wooden plug in the center of the rawhide, put some glue in the hole in the binder, and then drive the plug into the hole with a steel punch.

Trim off the exposed rawhide, and leave a portion about $\frac{1}{4}$ in. long outside the hole. As the shuttle is seated in the box, the exposed section of rawhide will extend into the feeler slot of the shuttle and prevent it from creeping forward. (K-3382) *H. E. Wenrich, Berwick, Pa.*

An Easy Way to Keep A Fabric Inventory

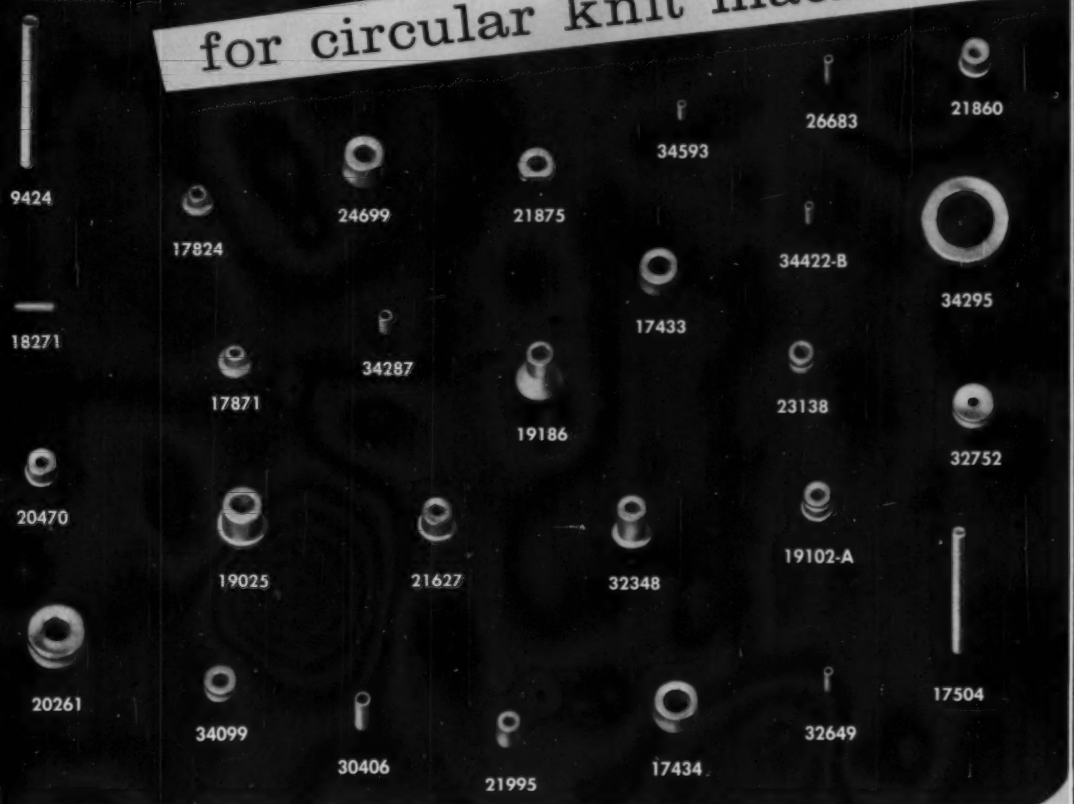
We keep a large stock of finished fabrics of many styles and colors. We had trouble finding specific pieces until we devised this easy way to keep our inventory.

The storage racks are numbered from 1 to 60 in their vertical sections and labeled from *A* to *E* in their horizontal sections. A card rack in the office corresponds with the numbers of the racks in the warehouse.

Each roll in the warehouse has a duplicate piece ticket in a pigeon hole in the card rack. To locate fabric for shipment, all we do now is look it up in the card rack, check the number of the rack, and go to the corresponding rack in the warehouse. (K-3102)

ALSIMAG 192 *Guides*

for circular knit machines



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LONG LIFE. This very hard, smooth material is homogeneous, thus has no rough underbody.

FEWER REPLACEMENTS. Extra long life of AlSiMag guides means less down time, less labor costs.

BETTER QUALITY. Your product is better because these guides help attain uniform tensions. You also eliminate yarn damages which sometimes resulted from undetected guide failures in old type guides that had a smooth surface and a rough underbody.

UNIFORMITY. AlSiMag guides are uniform dimensionally and physically, from guide to guide and from lot to lot. This speeds installation, helps you to attain UNIFORMLY high quality in your product.

LIGHTER TENSIONS. AlSiMag guides are available in controlled finishes.

STATIC CONTROL. Where static is a problem, AlSiMag guides can be supplied in AlSiMag 193 which is identical to 192 except that 193 is electrically conductive.

PROMPT DELIVERY. Ask us about test samples.

NOTE: These standard AlSiMag Rings are available in various thicknesses, weights in proportion.

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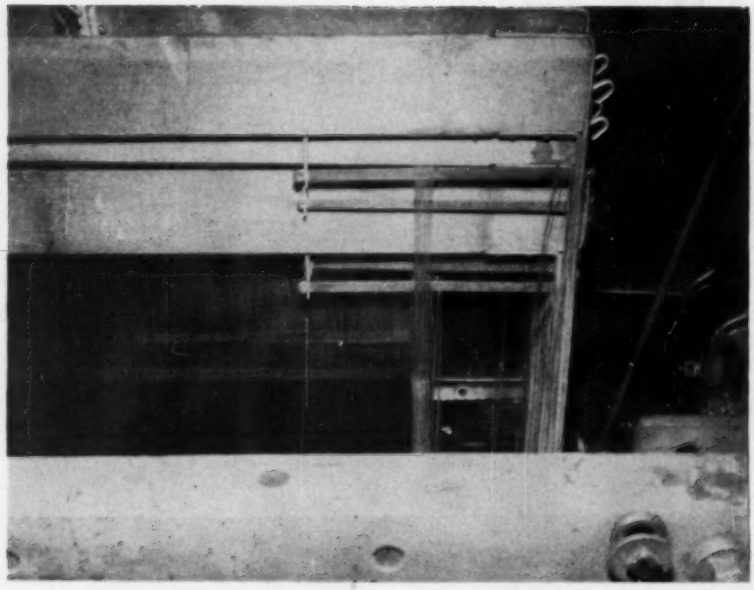


We Cut Off Harness Ribs To Prevent Hanging Selvages

So that we can watch our tape selvages closely in weaving, we run them on the front harnesses next to the loom handrail. In this way, weavers can draw in broken selvage ends more easily; and in addition, fewer ends are broken.

For closer control of selvages, we also rearrange the selvage harnesses. When a harness has only a few warp ends at each edge, the ribs often cross and hang in the center. Then an entire selvage is broken out.

We cut off all harness ribs to about 8 ins. in length. A hole the same size as the regular end hole is bored in the end of the cut-off rib. A hook for the bored hole is placed in the harness shaft directly above the new hole, and the rib is fastened to this hook.

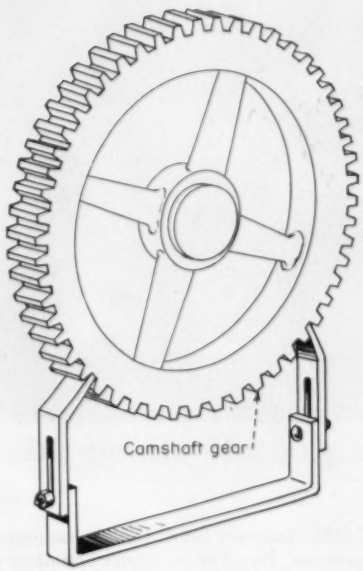
Ribs fastened in this way never hang up.

When harnesses are returned to the drawing-in department at warp cut-outs, the tape-selvage harnesses are arranged the new way. (K-3510) *Schwarzenbach Huber Co., Altoona, Pa.*

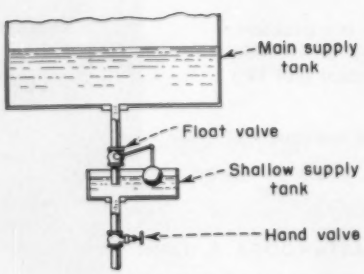
Use a Disk Tension To Stop Drop Stitches

We experienced lots of trouble with drop stitches and loops in the fabric when we changed to lightweight fabrics on our fine-gauge knitting machines. This trouble was very apparent when we knitted panel-rib fabrics, and yet the machine seemed to be in perfect order.

We eventually eliminated the trouble by screwing a disk tension to each yarn guide. This tension controls the erratic movement of the yarn at the needles and allows the yarn to flow smoothly to the needle hooks. (K-3352)



Keep Process Liquors Flowing At a Constant Rate



When the main supply tanks of a dyeing range are piped directly to the padder or oxidation or soaping boxes, the rate of flow of the liquors varies as the tanks empty. The operator then has to make adjustments at the hand-control valve to maintain an even flow of material.

By interposing a small supply tank fed through a ball-float valve, a constant head is maintained; and once the hand-control valve is set, it will require no further attention. (K-3554) *Dyelines, American Cyanamid Co., Bound Brook, N. J.*

Camshaft Lock Aids Timing of Loom

When it is necessary to disengage the crankshaft and camshaft gears for overhauling or replacing parts, it is sometimes difficult to correctly time the gears when they are reassembled. The correct timing is very important, especially on looms equipped with dobbies or jacquards.

Before the gears are disengaged, the camshaft is locked in position with the attachment shown. This locking attachment is made of three pieces of strap iron bent to rest on the floor and engage the teeth of the camshaft gear. Slots in the upright pieces permit adjustment by means of bolts inserted in them. (K-3464) *W. P. Squires, Manchester, Ga.*

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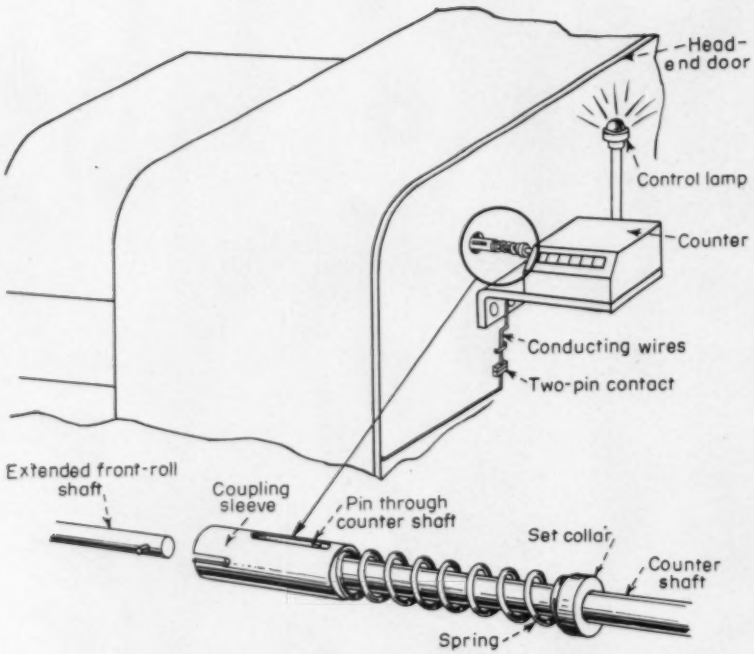


Predetermining Counter Improves Spinning Efficiency

Our mill spins 13,000 yds. of 40s yarn on 11-in. tubes. We had trouble in putting the correct yardage on the tubes when the frame was out of adjustment or the roving was off weight.

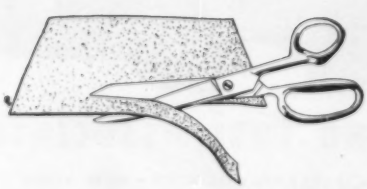
We solved the problem by attaching a predetermining counter to the frame. A lamp lights up when we have the exact yardage on the tube. Here's how we rigged the counter on the frame:

A piece of angle iron was used to fasten the counter to the head end of the frame so that the shaft of the counter is in line with the front rolls. A 1-in. hole was bored through the door for the connection.

The angle iron was then bored, and a piece of conduit was fastened on with two nuts to hold the lamp. The front-roll shaft was lengthened with a piece of round stock that almost reaches the head-end door.

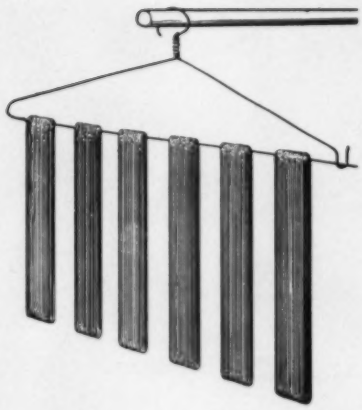
Next, a $\frac{1}{8}$-in. pin was put through the roll-shaft extension to give a positive connection with a coupling sleeve. The sleeve has two slots that are engaged by the roll-shaft pin; a pair of oblong holes in the other end of the coupling engage the pins on the counter shaft. This coupling is necessary to permit the opening of the head-end door.

There are other ways to attach a counter to a spinning frame, depending on the kind of frame used, but I have found this system to be very satisfactory. The arrangement gives us the correct amount of yarn on the tube, fewer doffer stops, and improved yarn quality. Also, it is easier to spot mechanical defects. (K-3372)



Cut Sandpaper To Sharpen Shears The Easy Way

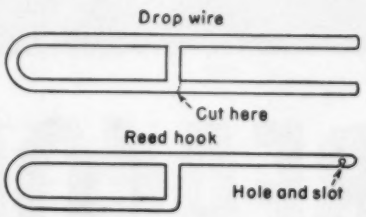
Shears and scissors can be sharpened by cutting fine sandpaper or emery cloth with them. Make the cuts in narrow strips and turn the paper over alternately so that both cutting edges will contact the abrasive side of the paper or cloth. (K-3151)



Adapt Clothes Hanger To Dye Sample Skeins

A great deal of room can be saved in a skein-dyeing tub by using a clothes hanger to carry several small hanks at one time.

Modify the clothes hanger by cutting one end of the bottom loop of the wire and forming a retaining hook from the other free end. Suspend the hanger in the dye tub on a regular pole. The dyed samples can be extracted on the hanger, which helps keep them separate from the lot. (K-3463)

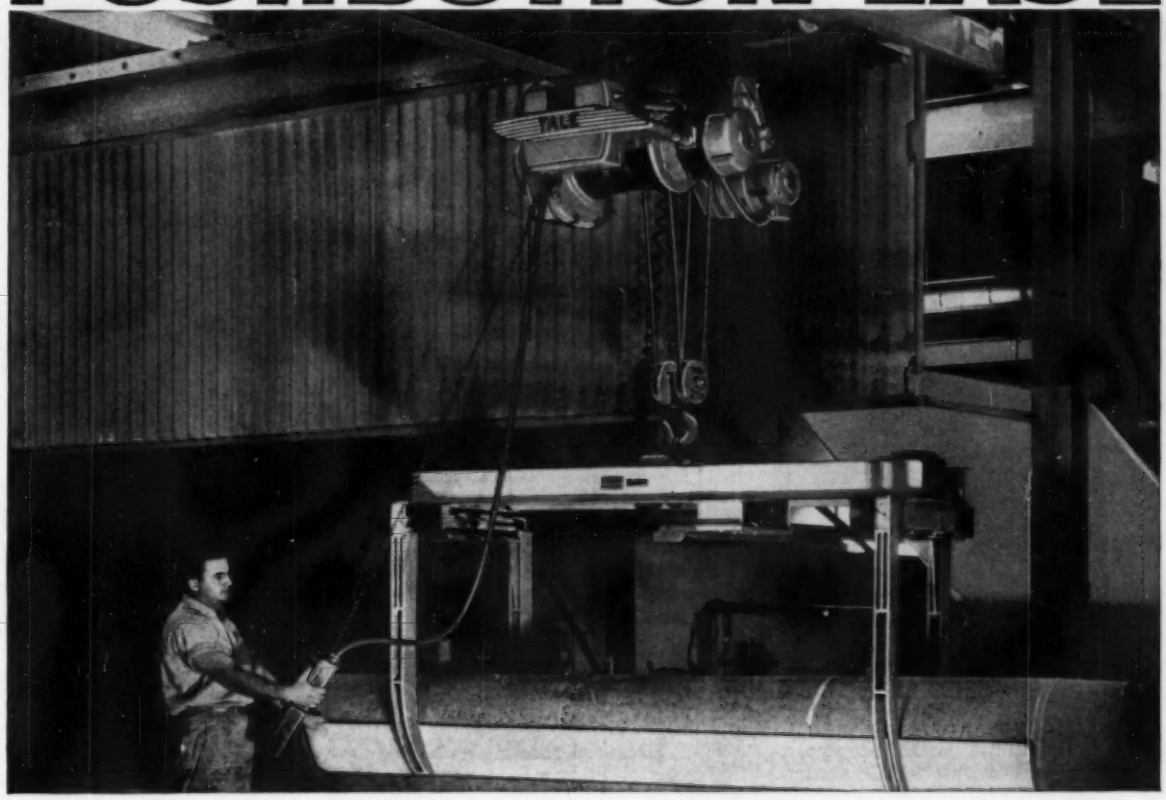


Use a W-3 Drop Wire To Make a Reed Hook

A serviceable reed hook can be made in a few minutes from a heavy drop wire. Cut or break off one leg of the drop wire, and drill a $\frac{1}{16}$-in. hole near the end of the remaining leg.

With a very fine file, make a slot from the edge of the leg to the hole. Round off the end on the emery wheel, and the reed hook is finished. Several should be kept on hand for emergency use. (K-3115)

PUSHBUTTON EASE



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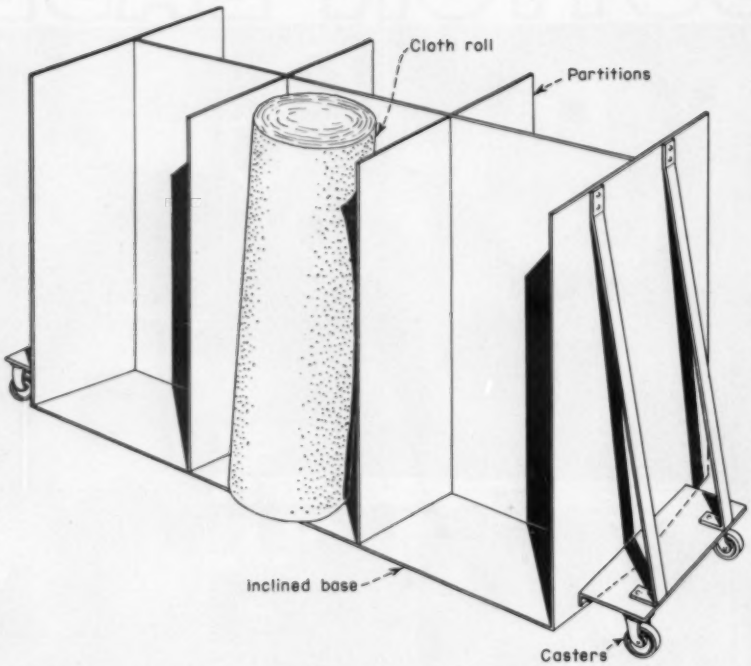


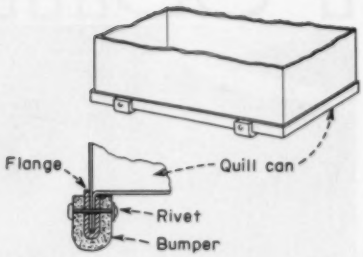
Fabric Truck Eliminates One Operator

Transporting heavy rolls of cloth was a problem in our knitting department, where we use female knitters. A man was used to load these rolls into a truck and transport them to the finishing department. To eliminate this man, we built a special truck that the girls can load.

The truck holds six large rolls of cloth. The base sits close to the floor so that the rolls of fabric can be rocked into the truck.

Four galvanized sheets screwed to the center sheet form compartments for the six rolls. The base is curved toward the center so that the rolls don't fall off the truck when it is moved.

Four casters at the corners of the truck allow it to be pushed easily to the finishing room when it is full. (K-3309)

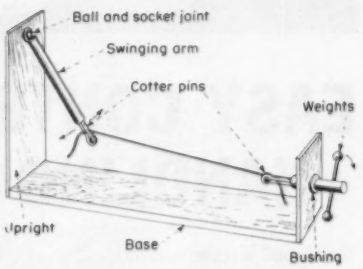


Bumpers on Quill Cans Protect the Mill Floor

When full-length metal quill cans are used, the floor is often damaged by the edges of the cans striking it when the can is emptied.

We eliminated damage to the floors (and also made the cans last longer) by riveting a leather bumper to the reinforced flange on the bottom of the cans.

Two of the bumpers are fastened to the front of the cans, and the flange is bent outward slightly so the can will fit on the spider. (K-3480) *W. P. Squires, Manchester, Ga.*

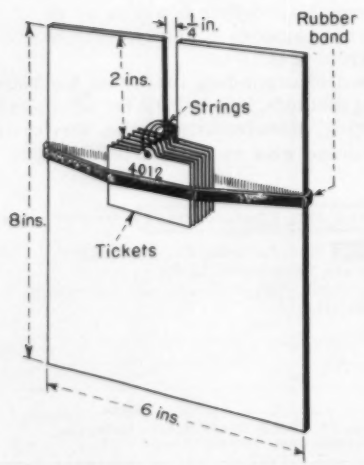


Cotter Pins Hold Yarn Firmly for Untwisting

To untwist ply yarn for identification, we built a simple mechanism from two cotter pins, a little bit of scrap lumber, and an old bushing.

A wooden base was made with a swinging arm at one end and a weighted twisting rod at the other end. A shallow hole, the size of a closed cotter pin, was drilled in the ends of both the swinging arm and the twisting rod. No springs or special clamps are required.

The yarn to be untwisted is clamped in the cotter pins, and the twisting rod is given a twirl. The ends separate easily and are held firmly by the cotter pins until the yarn is removed. (K-3401)

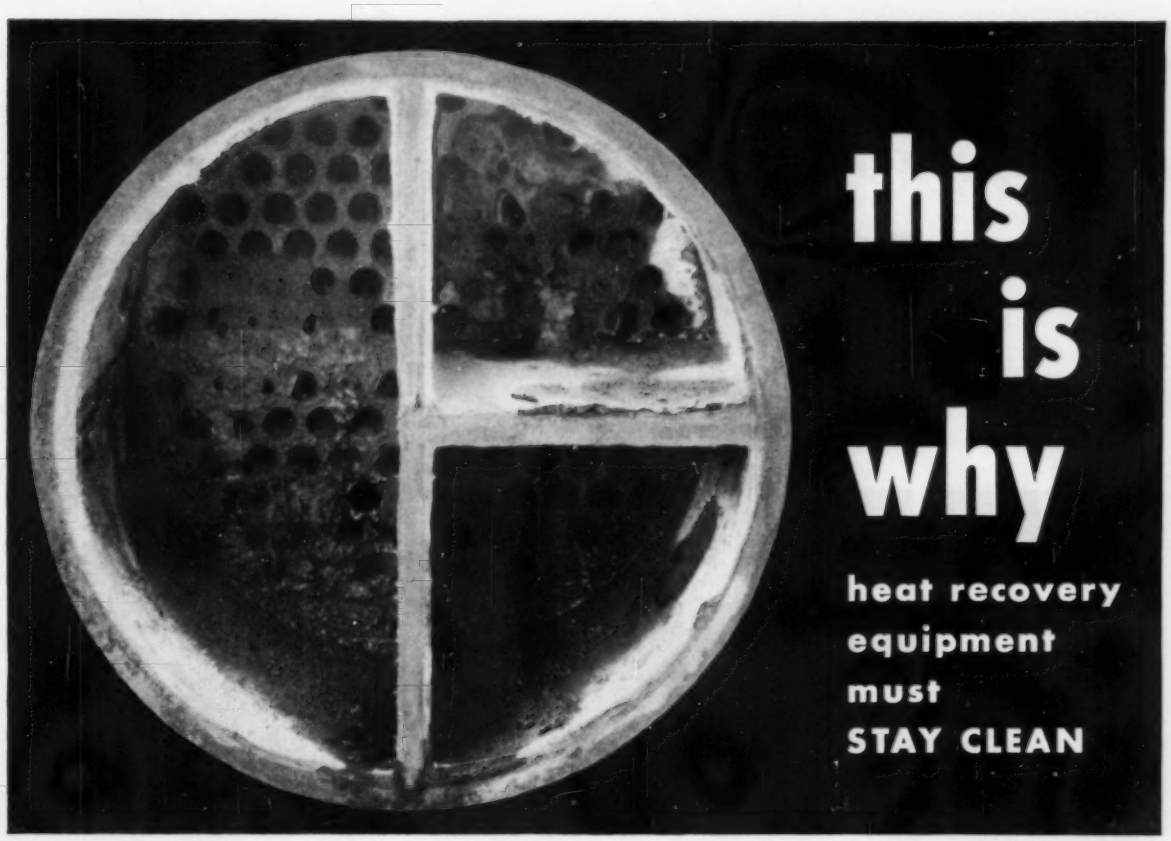


Rubber Band Keeps Sample Skeins from Tangling

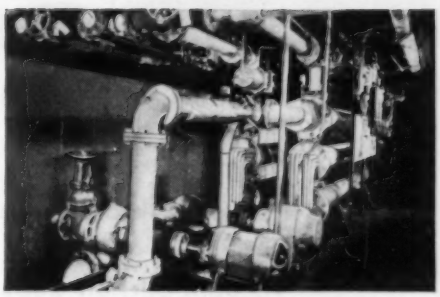
Dyed skeins of yarn for sample-identification purposes get in a mess when they are thrown into a drawer or a box. Here's an easy way to keep them tidy:

Cut a ¼-in. slot 2 ins. long in an 8x6-in. piece of stiff cardboard. Slide the strings that hold the ticket to the skein down the slot. Keep all the tickets on one side of the cardboard.

When all the skeins are in position, stretch a rubber band over the cardboard and anchor the tickets. This system will keep the skeins from tangling and save time in sorting them out. (K-3362)



Unretouched photograph shows why this obsolete heat reclaimer was abandoned after only nine months of intermittent operation. A heavy muck deposit continuously builds up in this type of heat recovery equipment, as shown, after each cleaning.

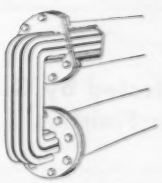


Manual cleaning of old style waste water heat recovery equipment results in failure of performance as shown above. Labor of cleaning and downtime are costly. Because the work of cleaning is filthy, the equipment is neglected by plant personnel.

Efficient transfer of heat from polluted water to incoming water is accomplished only when the flow is unimpeded and heat transfer surfaces are clean.

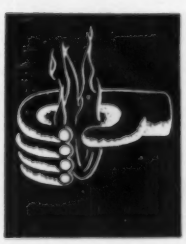
With a Bready System of Heat Recovery, cleaning is automatic. Rated results are continuous *and guaranteed.*

Do you want more information on the advantages of a Bready System for recovering the heat from your plant's waste water? Mail a card to Ludell today.



CONTINUOUS TUBES

Only the Bready System has the patented continuous tube feature that permits lint and other solids to be completely backflushed directly to the sewer.



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Manufacturing Company

5200 West State Street • Milwaukee 8, Wis.

Representatives in the United States, Canada, Alaska

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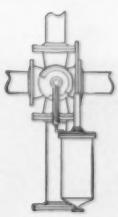

AUTOMATIC BACKFLUSHING

Timed backflushing, combined with the Bready exclusive, continuous multi-tube construction completely prevents stop-up of the system.

For more data, write this page number on Reader-Service card. →

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- Not Affected by Oils, Greases, or Floor Finishes
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- More Economical than any other type Vibration Pads
- In Stock — Prompt Delivery!
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TEXTILE WORLD, A McGraw-Hill Publication, New York 36, N. Y. September, 1957

Outstanding NEW LITERATURE
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NO REPEATS . . . Listed here for September are current bulletins reviewed by the editors of TEXTILE WORLD. To get the one you need, circle the number on the Reader-Service card, as described on the preceding page.

TEXTILE MACHINERY & AUXILIARY EQUIPMENT

Drying ovens—For drying, curing textiles. Made in single- or multi-pass types, for tenters or for use as predryers. Cat. 750. The Lanly Co. (F-1)

Circular knitting machine—Produces plain or fancy jersey fabrics, fleecy fabrics, patterned effects in gauges to 20 needles per in. Emavet 33 type. Lebocy Machines. (F-2)

Seamless-hosiery machine—With 400 or 474 needles, 3¼-in.-dia. cylinder. Double feed, automatic inturned welt. Produces one hose per min. G. Stibbe & Co. Ltd. (F-3)

Needle positioner—For sewing machines. Automatically positions needle at each stop of the sewing machine. Clinton Industries. (F-4)

Laboratory dyeing machine — For skeins; gas-heated. Skeins can be dyed at 270° F. in individual beakers. Samuel Pegg & Son Ltd. (F-5)

Expanders—For aligning, expanding fabrics passing through textile machines. Bowed-roll type, rubber covered. C. A. Litzler Co., Inc. (F-6)

Automatic ribber—Produces rib ends in gauges from 5 to 14, knitting width, 160 cms. Hertel & Richter GmbH. & Co. (F-7)

Prepackaged replacement parts—For textile machines. Bulletin lists parts that are now available for Saco-Lowell equipment. Saco-Lowell Shops. (F-8)

Bobbins—For winding, twisting; made from maple, aluminum, vulcanized fibre in many types and sizes. Catalog from Lestershire Spool Div., National Vulcanized Fibre Co. (F-9)

Full-fashioned knitting machine—For outerwear or underwear. Features automatic rib transfer, variable draw, grouped controls. S. A. Monk Ltd. (F-10)

SUPPLIES & CHEMICALS

Surfactant—For manufacturing rust and corrosion inhibitors, wetting and dispersing agents, described in Bulletin 51. Sun Oil Co. (F-11)

Coning oils—Antistatic properties and easy removal feature oils described in yarn-lubrication report from Nopco Chemical Co. (F-12)

Vinyl coatings—Vinyl ethers and copolymers for adhesives and coatings are described and applications suggested in Data Sheet P-123 from Commercial Development Dept., General Aniline & Film Corp. (F-13)

Salt—For industrial purposes; 60 different types listed and described in 16-page booklet from Diamond Crystal Salt Co. (F-14)

Scales—For accurately weighing small to moderately large amounts of material. Several ranges and types described in Form 3333 from Exact Weight Scale Co. (F-15)

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Vinyl monomers—Vinyl acetate, propionate, and methyl isopropyl ketone are described in a leaflet from Celanese Corp. (F-16)

Gum arabic—Data sheets show how to prepare clear solutions from selected grades of gum arabic. Laboratory reports A-820-G2 and A-820-G3 available from Morningstar, Nicol, Inc. (F-17)

pH electrodes—How to choose electrodes for pH measurements under various conditions is set forth in Bulletin 86L from Beckman Instruments, Inc. (F-18)

Protective coatings — For extreme chemical and heat resistance in outdoor or indoor applications, by brush or spray method. Wilbur & Williams Co. (F-19)

MAINTENANCE & ENGINEERING

Metal fabrication — Manufacturing methods and useful data on fabrication of copper, stainless steel, and aluminum into many types of tanks, ducts, and fittings set forth in 16-page brochure from Portland Copper & Tank Works. (F-20)

Exhaust ducting—Flexible ducting in retractable and nonretractable forms for industrial ventilation described in Bulletin 70 from Flexaust Co. (F-21)

Steam-plant accessories—Traps, strainers, separators, valves, and engine stops in a variety of capacities listed in Cat. No. 69 from Strong Steam Specialties Div., Strong, Carlisle & Hammond. (F-22)

Corrosion-resistance data—For users of alloy-steel tubing exposed to high temperatures and pressures. Babcock & Wilcox Co., Tubular Products Div. (F-23)

Machine gears—Metal and composition gears in many types listed in folder from Southern Gear Works, Inc. (F-24)

Screw conveyor—Enclosed tubular conveyors for handling materials up to 2-in. particle size at any angle; manual or automatic control. Canton Stoker Corp. (F-25)

Controlled-volume pumps — Motor-driven, positive-displacement pumps for metering and pumping corrosive liquids. Bulletin 553-1 available from Milton Roy Co. (F-26)

Corrosion-resistant lining — Cement-based material for coating tanks described in bulletin PF17 from Pocono Fabricators, Inc. (F-27)

Centrifugal pumps—Two-stage general purpose pumps in capacities of 100 to

IS A-C POLYETHYLENE "X"* THE X FACTOR IN YOUR PROCESS?

Stories of successful application of A-C POLYETHYLENE are pouring in from so many fields and industries that we haven't had an opportunity to explore the apparently limitless uses of this exciting new polymer. So we're asking you! If your field of operation is even remotely similar to those below, it is very probable that A-C POLYETHYLENE can give you increased sales, lower costs and many other advantages. Find out today!

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X **Polish Makers** use it in its emulsifiable form and call it the "Polish Maker's Polyethylene". They're getting finish durability, non-slip properties, and rebuffability!

X **Paper Converters** use it as a hot melt and are enthusiastic about the low-cost quality coating it offers. Grease resistance, scuff resistance and single feed to automatic machines are other advantages!

X **Dairy Carton Coaters** add it to waxes for their cartons, getting longer shelf life and reducing flaking, leaking and bulging!

X **Food Packagers** like the smarter, glossier appearance of their packages—less rub-off and scuff. Printing looks better, too!

X **Box Makers** coat interior surfaces of corrugated cartons with an A-C POLYETHYLENE-Paraffin blend to eliminate the need for liners! Scratch from paper fibers on fine finishes is eliminated!

X **Textile Finishers** find A-C POLYETHYLENE surprisingly versatile for sizes or finishes. Excellent hand, sewability, durability, abrasion resistance and many production advantages result from using this polymer!

X **Ink and Paint Manufacturers** are satisfied that A-C POLYETHYLENE adds anti-smudge and scuff resistance characteristics to their products!

X **Slush Molders** use A-C POLYETHYLENE with other polyethylenes and end up with a "brand new" material, giving them simpler production with lowest mold costs. The finished articles are tough, colorful and have fine detail!

X **Film Extruders** are using A-C POLYETHYLENE for faster extrusion rates, lower machine temperatures, easier gauge control and less all around machine stress. A-C POLYETHYLENE is a natural for coloring films. Color concentrates made with A-C POLYETHYLENE produce brilliant, uniformly colored film!

X **Squeeze Bottle Makers** are praising the glossy finish and even color when using A-C POLYETHYLENE. They like the faster molding operation, too!

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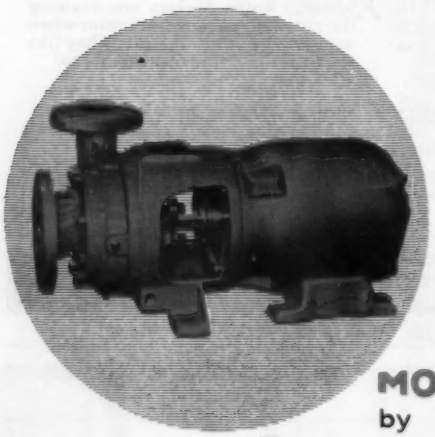
Here's the major point to keep in mind the next time you're ready to order centrifugal pumps . . . year after year the quality of I-R Motorpumps continues to pay off in actual savings through reduced maintenance costs, uninterrupted service and maximum pumping efficiency.

You can always choose the right pump from the wide range of Ingersoll-Rand Motorpump types and sizes, and be sure of modern design features that assure rugged dependability.

Complete information on I-R Motorpumps is available from your nearby Ingersoll-Rand branch office. Or write for latest bulletin.



MOTOR PUMP
by
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9-671

3,500 gals. per min. at pressures up to 450 psi. listed in 16-page bulletin from Ingersoll-Rand Co. (F-28)

Chemically inert gaskets—Gaskets and O rings made of Teflon are described in Bulletin P-237 from Crane Packing Co. (F-29)

Water-treating for boilers—Recommendations for treating water for medium-pressure boilers based on case histories. ASME paper No. 111 reprint available from Cochrane Corp. (F-30)

Emergency escape light—For use when normal lighting fails. Battery-powered, sealed-beam light in rugged case described in folder from Micro Switch Div., Minneapolis-Honeywell Regulator Co. (F-31)

Industrial gearing—General information on design and manufacture of gears for all purposes compiled in booklet 7012 from Westinghouse Electric Corp. (F-32)

Masonry sealer—For walls, dams, pits, other structures subject to water seepage. Sealing compounds described in folder from Stonhard Co., Inc. (F-33)

Belting—Plastic-reinforced flat leather belting of high strength and tractive capacity. Booklet from J. E. Rhoads & Sons. (F-34)

Hydraulic cylinders—Description of several types plus engineering data on application and required sizes compiled in Bulletin 57-68. Vickers, Inc. (F-35)

Protective switch—For rotating or reciprocating machines; shuts down machine if normal vibration is exceeded. Bulletin 600-1 from Fielden Instrument Div., Robertshaw-Fulton Controls Co. (F-36)

GENERAL

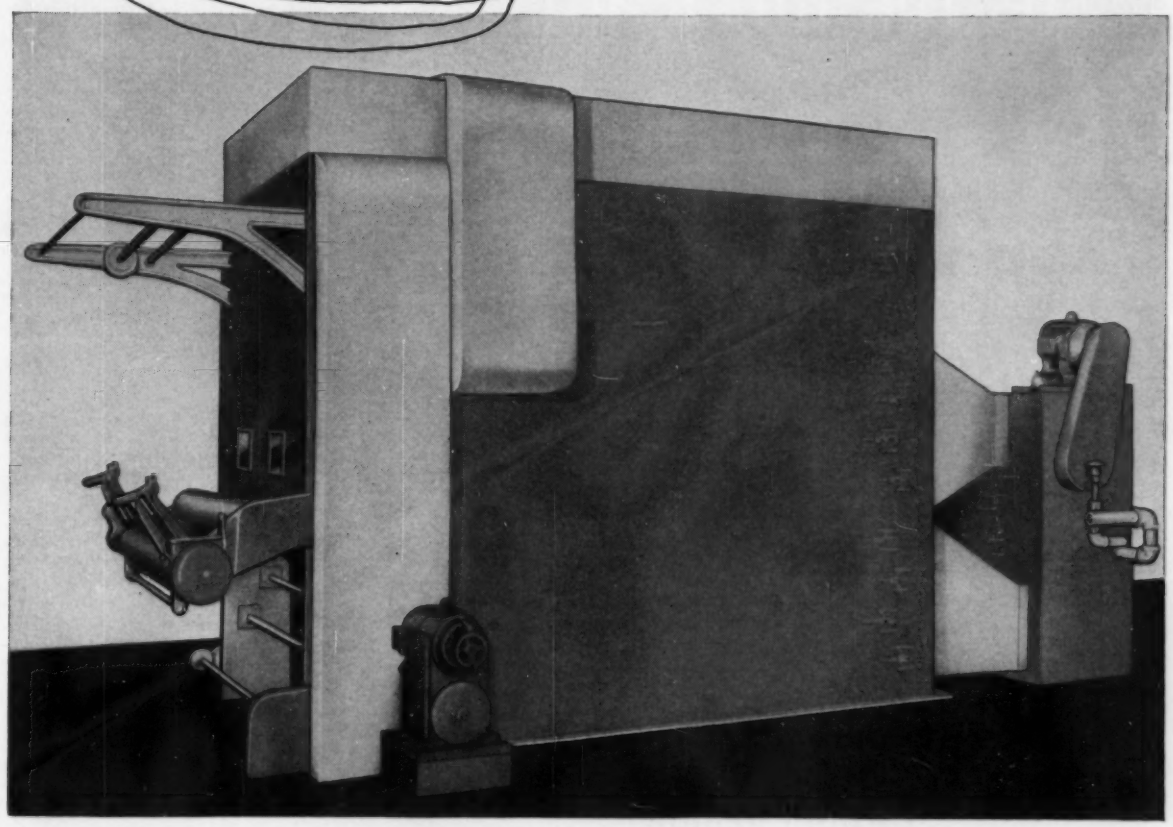
Fork truck—Operating and maintenance features improvements in new 4,000-lb. fork truck described in six-page brochure from Industrial Truck Div., Clark Equipment Co. (F-37)

Package drives—Available in 5 to 200 hp., complete motor-generator-control units described in Bulletin 51B8166A from Allis-Chalmers Mfg. Co. (F-38)

Abrasive cutting machines—For fabricating pipe, rods, other items used in construction and maintenance. Wet- and dry-cutting models. Bulletin AB457 from Beaver Pipe Tools, Inc. (F-39)

Steel strapping news — Publication notes applications of steel strapping for many industrial purposes. Ask for

Shrink Your Textiles.....AND Your Costs!



Gessner's new Continuous Steam Sponging Machine has transformed textile sponging into a continually even, fast, economical operation — so fast in fact, that 25 yards of cloth per minute can be sponged and measured for yardage.

Evolved from six years of painstaking development, Gessner's new machine eliminates the problem of single roll winding, hit-or-miss manual tensioning, costly piece-by-piece handling, leaking cylinders and long cooling periods.

The Continuous Steam Sponging Machine — right now — is properly shrinking woolens, synthetics, blends and mixtures with almost unbelievable economy. May we talk more about it with you?

DAVID GESSNER COMPANY

WORCESTER, MASS.

Canadian Representative: W. J. Westaway, Montreal, Quebec, Hamilton, Ont.

Gessner Improved Cloth Finishing Machines maintain a standard of performance to meet the exact requirements of your cloth finishing

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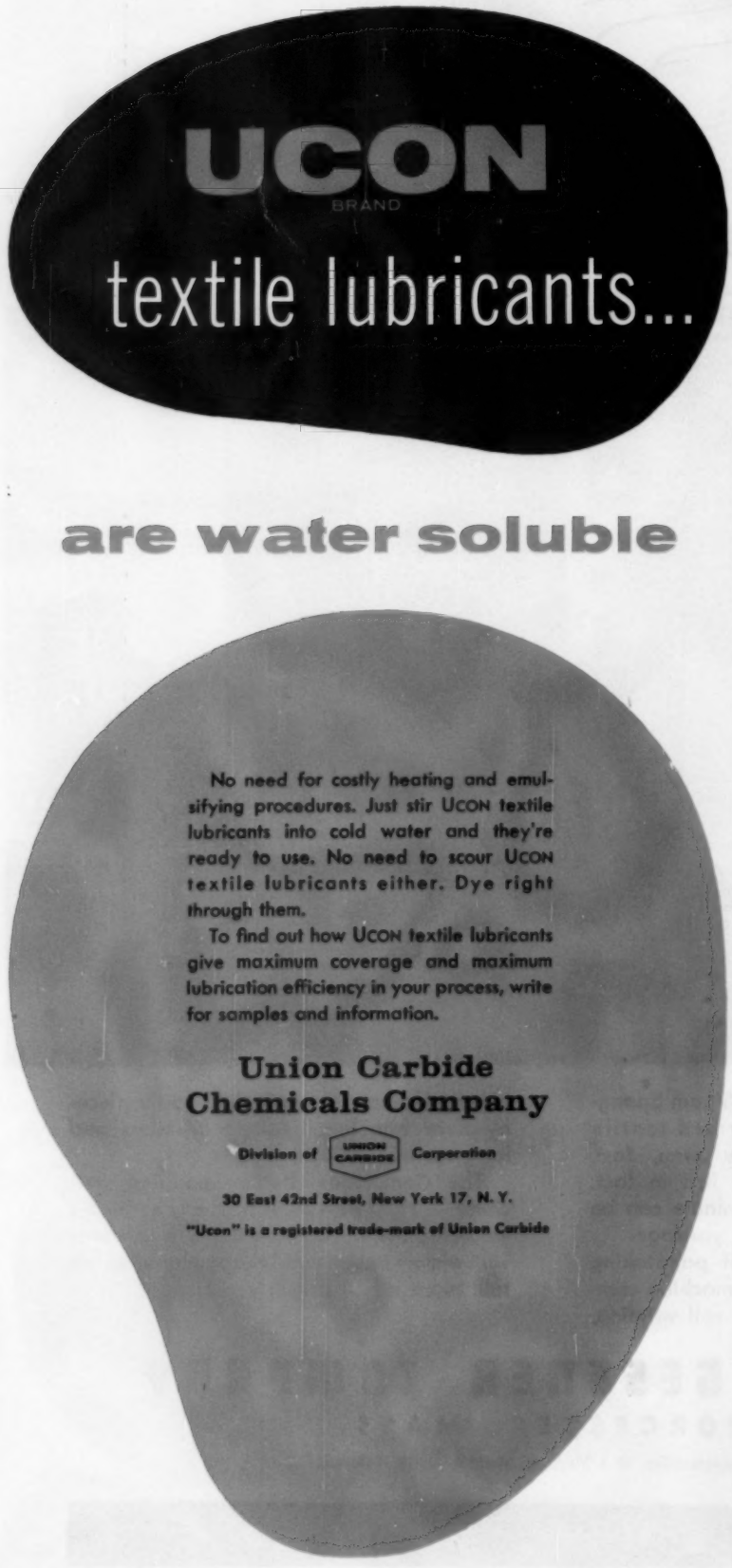
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No need for costly heating and emulsifying procedures. Just stir UCON textile lubricants into cold water and they're ready to use. No need to scour UCON textile lubricants either. Dye right through them.
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NEW LITERATURE Continued

Signode Seal. Signode Steel Strapping Co. (F-40)

Commercial glasses—Properties of various types of glasses used in industry are discussed in a booklet from Corning Glass Works, Technical Products Div. (F-41)

Safety manual—For laboratory workers; lists proper apparatus, approved methods of handling chemicals. Bulletin FS201. Fisher Scientific Co. (F-42)

Plant protection—Fire alarms, fire extinguishing and detecting apparatus; burglar alarms, described in publication from Walter Kidde & Co., Inc. (F-43)

Custom fabrication—Of metal specialties of all types. Story of methods and equipment used by Tornqvist Co. (F-44)

Cotton-compress truck—For handling cotton bales; electrically powered. Folder describes Model F-45T; available from Elwell-Parker Electric Co. (F-45)

Oxy-catalyst chart — Carbon-monoxide production of trucks with standard mufflers compared to those with catalytic purifiers attached to mufflers. Oxy-Catalyst, Inc. (F-46)

High-capacity trucks—For loads to 20,000 lbs., described in a release from Yale & Towne Mfg. Co. (F-47)

Vulcanized fibre—For containers, roving cans, trucks, boxes, other uses described in 16-page booklet from Continental-Diamond Fibre Corp. (F-48)

Radio pager—For contact with individuals from a central station. Selective system insures privacy, quick attention to call. Motorola Communications & Electronics, Inc. (F-49)

Electric hoists—In 500- to 4,000-lb. capacities, for hook or rail mountings in several types. Wright Hoist Div., American Chain & Cable Co., Inc. (F-50)

Textile World

BOOK REVIEWS

THE WORLD IS CATCHING UP, by Harry Riemer; Fairchild Publications, Inc., 7 E. 12th St., New York, N. Y. Two volumes, 638 pages, $10.

Here is an excellent summary of world developments in the manufac-

FACT: The new Life-Line A has stronger insulation than any motor on the market

Meaning what? Simply that the new Westinghouse Life-Line® "A" motor with new *fortified insulation* can withstand heavier overloads and operate at higher temperatures than any other motor you can buy. That's electrical system improvement!

There are equally important advances in the Life-Line "A" mechanical and lubrication systems. It takes the right combination of *all three systems* to build industry's most preferred "power package".

Get all the facts from your Westinghouse sales engineer —The Man With The Facts. J-21894-A

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INCREASING TEXTILE PRODUCTION AND DECREASING COSTS AT RUSSELL MANUFACTURING CO., ALEXANDER CITY, ALA.

Advanced engineering methods of servicing over 64,000 spindles at the mills of Russell Mfg. Company have helped them to be recognized as one of the South's most enterprising textile mills. The continuous productive operation of textile machinery depends to a large extent upon keeping the equipment supplied with work materials. Keeping work material on hand and feeding it into the spinning machinery speedily is accomplished at Russell Mills with a combination of integrated trucks. And to assure these trucks a trouble-free, continuous cycle through every phase of mill operation, the Russell executives selected Faultless 504-4TG rigid plate and 1104-4TG Double Ball Bearing Swivel Casters with drawn steel wheels.

1100 Series SwivelCaster shown with Drawn Steel Wheel. Note two full rows of hardened ball bearings in swivel head and in wheel hub.

Faultless castered equipment can lead the way to reduced costs and increased production in *your own plant.* Casters for light, medium, heavy and special duties are included in the extensive Faultless line. Faultless wheels for every type floor and load, as well as for special temperature and chemical conditions, are available.

Your nearby Faultless Industrial Distributor maintains a substantial inventory of Faultless Casters for immediate delivery. He and one of the strategically located Faultless Sales Engineers are available to work with you on every handling problem in your plant. Both are listed in the Yellow Pages, under "Casters," beneath the Faultless heading.

500 Series with Plaskite Wheel and Thread Guard to keep lint out of bearings, string from winding around axle.

FAULTLESS CASTER CORPORATION
EVANSVILLE 7, IND.

FAULTLESS SOLVES THE TOUGH JOBS

ture and sale of textiles, noted by a keen observer who is well qualified to report on the subject.

Mr. Riemer's world travels took him to 36 countries, and his visits with industrial and political leaders provided a wealth of information regarding the progress of these nations in textile production.

There is plenty of reference material interspersed with good general information on many aspects of life in foreign lands.

The struggle to develop adequate textile production in each of several Far Eastern countries was noted by Mr. Riemer as a facet of the strong nationalism that prevails in the area.

The universal trend is to approach America's productive capacity and thereby to raise the standard of living in countries now emerging as political entities in their own right.

SYMPOSIUM ON STEAM QUALITY, ASTM Special Technical Publication 192; American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.; 49 pages, paper cover, $1.75.

The modern steam generator employing high temperatures poses problems not encountered in older, low-pressure systems. These papers explore analytical methods that have been developed to detect various unwanted impurities in high-pressure, high-temperature steam.

SELECTION OF MANAGEMENT PERSONNEL, edited by M. Joseph Dooher and Elizabeth Marting; American Management Assn., 1515 Broadway, New York 36, N. Y.; two volumes, 892 pages plus index; $15. (AMA members, $10).

Described as the first complete handbook on the selection of managers, the first volume covers the selection of supervisors, the selection of executives, and the practical aspects of selection in these two categories.

The main subjects are broken down into subheads that delve into the psychology of what makes a good supervisor or executive, the demands of the job, how research helps supervisory selection, and how to administer a soundly based selection program. Chapters on methods of promotion, recruitment, and the selection of supervisors from technical personnel complete the first volume.

In volume two, there are reports from 19 companies that describe current practice in selecting and training supervisors and managers.

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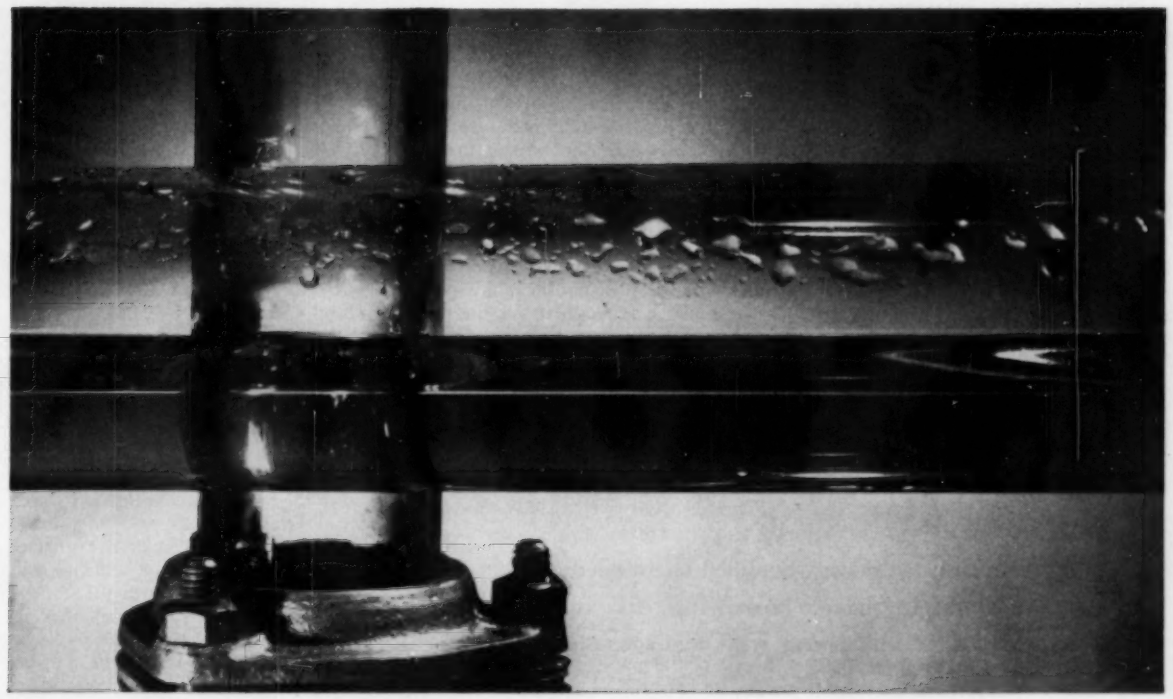


Why a rose is a rose when you move dyes in PYREX® glass pipe

Unlike most metals this *glass* pipe cannot turn a delicate rose to a red or a pink or some other unwanted color.

The slightest contamination can cause such drastic changes in the quality of the dyes Bachmann Uxbridge Worsted Mills use in their color processing.

So their engineers appreciate more than most the fact that PYREX glass pipe is completely inert to dyes.*

Color changes made quickly

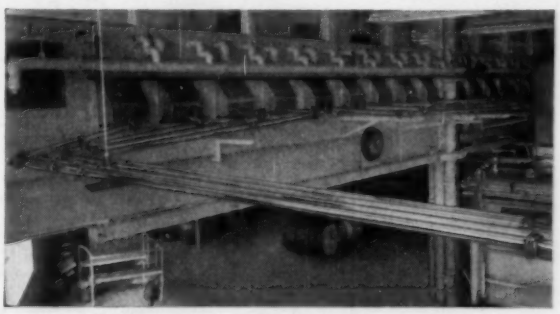
Because of its hard, smooth surface, free of sharp grooves and ridges, PYREX glass pipe is easy to clean. Bachmann Uxbridge can check the pipe's cleanliness visually before sending a new color through the pipe. It's easy to spot any impediments in the line, too, since you can see through the pipe.

Best of all, it costs less

PYREX glass pipe is actually about the least expensive piping material you can buy. It's priced competitively with other materials. Your own men can install it, it's that simple. And, because it combines chemical resistance with outstanding physical and thermal strength, PYREX glass pipe usually lasts far longer than other materials.

For a detailed bulletin on this pipe and the name of the dealer closest to you, send us the coupon below.

*PYREX *glass pipe is resistant to practically all acids and alkalies, even when they are hot and in combinations.*



25 lines of PYREX pipe, 25 to 100 ft. in length, transfer sensitive dyes from central mixing station to dye kettles at Bachmann Uxbridge Worsted Mills. Chemically inert, the pipe is also easy to clean, costs less than most metallic pipes.

CORNING GLASS WORKS
79 Crystal Street, Corning, N. Y.

Please send me the following material: Bulletin EA-3, "PYREX brand 'Double-Tough' Glass Pipe and Fittings" ☐; Name of nearby dealer(s) ☐.

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Company .....

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Corning means research in Glass **CORNING GLASS WORKS, 79 Crystal Street, Corning, N.Y.**

CONTINUED FROM PAGE 149

Place the index finger at one side of the needle to be removed.

Place the second finger at the other side of the damaged needle and draw out the faulty needle. This method keeps other needles from dropping out.

Raise the broken needle to its full height through the cloth and close the beards with the plier handle as the needle is drawn back and through the cloth.

To replace a leaded needle, insert the upper end of the lead into the open space where the broken needle has been removed. Take care that each needle in the lead enters the correct space in the sinkers.

Press up and inward on the lead with the fingers, and then press the lead with the plier handle. This pressure should be enough to get the new lead in place. Be sure that the needles are aligned at the top and with needles on each side.

If you cannot push the needles into place with the plier handle, use a soft piece of wood to tap the lead into place. Don't use a hammer or wrench to tap the needle into place because this practice flattens the lead and causes difficulty when the lead is removed again.

How To Remove Butted Needles

When you remove butted needles, insert a small blade between the needles just under the sinker. Press the blade to one side to show which needle is to be removed.

Pry the broken needle forward along its full length so that you don't break off the butt, which is easily broken. Broken butts will cause difficulty if they are broken and left in the slot.

When the needle is loose, draw it down and remove it as you would a leaded needle. Pliers should not be used to remove needles because they may bend sinkers or other needles.

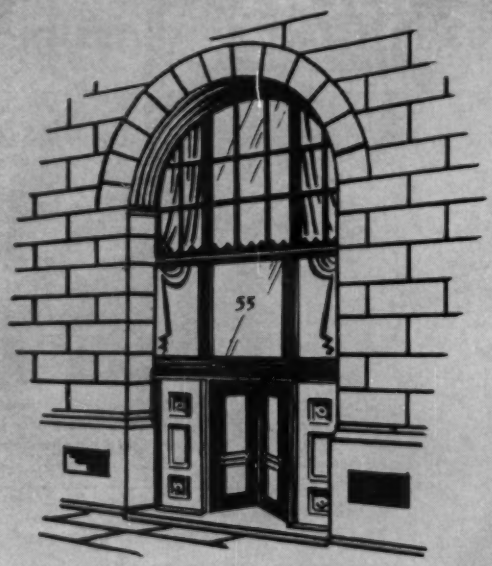
To replace butted needles, grasp the needle above the butt with the plier. Place the tip of the needle in the correct sinker space and press gently along the full length of the needle. Press the needle in place with the fingers.

When the needles are in complete alignment, replace the needle plate and tighten the screw. Do not tighten the screw too hard because it can be broken easily.

To keep needles in good condition, they should be kept clean with solvent or No. 10 needle oil. Apply a small amount of cleaner with a 1-in. brush. Let the cleaner remain on the needles for a short time, and then blow the needles clean with an air hose.

Our service is tailored to provide all the working capital any qualified client needs, without increased borrowing, diluting profits or interfering with management.

Information available for any manufacturer or distributor with $500,000 or more annual sales.



Textile Banking Company

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Providing operational financing for the apparel, electronics, furniture, leather, plastics and textile industries.

Subsidiaries:

T. B. C. Associates, Inc., New York Southwest Texbanc, Inc., St. Louis

NOVELTY YARNS

CONTINUED FROM PAGE 133

of the Helanca yarn plus the absorbency and cushioning effect of cotton or wool. A similar yarn can be made with wool as the fiber spun around the stretch core.

While the fiber being spun can be run from either single or double roving in the creel, it is more practical to use double roving. When the two ends of roving are run with the core between them, a better covering effect usually is obtained.

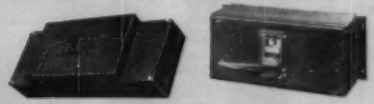
The core of stretch yarn is fed from an auxiliary creel on top of the spinning frame to a special guide attached to the traversing roving guide. This

← For more data, write this page number on Reader-Service card.

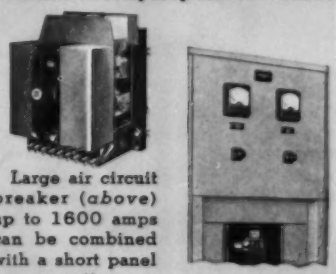
SQUARE D's NEW Unit Substation

IN POWER-STYLE CONSTRUCTION

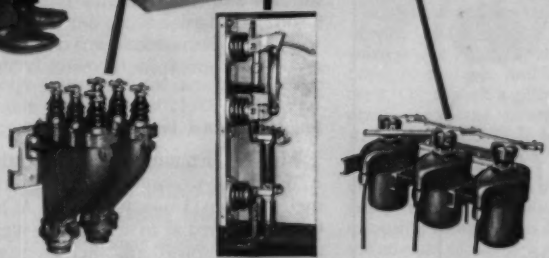
Designed to match Square D's Power-Style switchboards and control centers, these new Unit Substations meet NEMA, ASA, and AIEE standards. Available from 75 to 500 KVA; in primary voltages up to 4800V; secondary up to 600V.



Molded case circuit breakers (*left*) up to 800 amperes and QMB Saflex fusible switches (*right*) up to 600 amperes are available in compact panel construction.

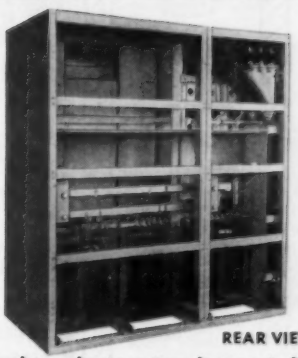


Large air circuit breaker (*above*) up to 1600 amps can be combined with a short panel in one section.



Pothead | Interrupter Switch | Cutout

Potheads, fused or unfused load break air-interrupter switches and fused or unfused oil-filled cutouts are available. Air-interrupter switches and cutouts are easily accessible from front of Substation.



REAR VIEW

3 single phase, dry-type transformers individually mounted on base in ventilated enclosure—heating and vibration held to a minimum. Transformers easily accessible for maintenance and inspection. When no air circuit breaker or metering equipment is used, entire area at top left is available for pull box.

NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

SQUARE D COMPANY

For more data, write this page number on Reader-Service card. →

guide is used to hold the core yarn in place between the two strands of roving as it is fed into the front rolls. It is very important for the core yarn to be delivered to the front rolls as near the middle of the two strands of roving as possible. This arrangement produces better yarn quality.

The tension on the stretch-yarn core should also be considered. Some tension is necessary to keep the Helanca yarn from kinking before it is delivered to the front rolls. Sand-blasted tensions with pigtail guides and a guide rod seem to give the best results. It also is necessary to insert small porcelain guides at the points where the core yarn passes through the special guide that holds it in place behind the front rolls to prevent broken filaments. This rig is illustrated in Fig. 2.

Ordinarily, the core is fed under the front rolls only. If the frame has Casablancas drafting elements, it is possible to run the yarn between the aprons. Either way is workable, but the front-roll feed is used more frequently.

Regardless of the feed, care must be taken to keep the core yarn in the center of the two rovings. For this reason, it is usually desirable to let the core yarn enter the drafting elements between the top and bottom apron.

Keep Drafts Under 18

With stretch yarn, it usually is necessary to hold drafts under 18. The twists should be around 2.75 to 3.75 times the square root, but the effect desired governs the amount of twist. Best results are accomplished when the core yarn is twisted twist-off-twist, with the final twist in the yarn ending up three to five turns off zero. Relatively low spindle speeds should be used.

Travelers are also important in the production and quality of this yarn. Only the best of rings should be used, and spindle speeds should be checked constantly. Tensions on the yarn core should be as near constant as practical.

To make stretch yarn, it may be necessary to change twist and draft constants on the spinning frame. If the stretch yarn is to be used for knitting, better results are obtained by running both Z and S twist at the same time on the knitting machine. Run the first feed as Z and the second as S, or vice versa. This arrangement prevents a skew in the knitted garments.

HARTFORD

AUTOLATCHING BOBBIN HANGER

NOW modified to take all roving bobbins from 8 x 4 to 12 x 7

- Positive Latch
- Easier and faster creeling
- Free-running ball construction
- Practically no upkeep
- Improves spinning
- Simplifies cleaning
- Low Cost

HARTFORD MACHINE SCREW CO.

DIVISION OF STANDARD SCREW CO.

P. O. BOX 1776

GREENVILLE, SOUTH CAROLINA

NEW SPINNING RINGS

CONTINUED FROM PAGE 151

schedule is maintained indefinitely as we gradually increase traveler weight to our standard 1-0.

"The 1-0 traveler's maximum life at 10,400-rpm. spindle speed is about 70 hrs."

Frame Speed Is Reduced

Mill 8—"Frame speed is cut about 25% when we are breaking in rings used to spin 15s warp yarn. A light traveler is used at first. Traveler weight and frame speed are increased after three weeks.

"For the first three or four shifts, the traveler is changed each shift. After this period, the traveler is changed once every three shifts. After the rings are broken in, the traveler is changed once a week."

Regular Travelers Are Used

Mill 9—"In breaking in spinning rings, we use a lighter traveler and slower frame speed than normal. Travelers are changed when they turn blue.

CONTINUED ON PAGE 214

← For more data, write this page number on Reader-Service card.

Using Salt Efficiently

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt

How to Determine Space Needs for Rock Salt Storage

Today, salt-using companies often have the problem of determining how much area and volume are needed to store a given amount of rock salt. To help the companies faced with this situation, International has developed a system for determining the exact floor space (or plant area) needed for any tonnage of salt. In addition, it is possible with this system to select the shape of salt pile best suited to individual plant layouts.

Principles of salt storage. International's system is based on two known facts: first, one cubic foot of rock salt (loosely poured and medium-packed) contains a constant average of 72 lbs. of salt. And, second, every conical pile formed by pouring rock salt from a fixed overhead point assumes the same shape.

Referring to the diagram, you will note that this shape is a perfectly conical one, with an angle of repose of 32° from the horizontal. In other words, for every 12-inch horizontal run, there is a 7½-inch rise. With these basic principles, therefore, it is possible to determine just how large a pile will be formed by any tonnage of rock salt.

Tables give complete area and volume data. For the convenience of salt-using companies, International has prepared a comprehensive set of tables with all the storage-space data for amounts of salt ranging from three to 23,000 tons. With these tables, for example, you can quickly find exactly the amount of space needed to store 3,000 tons of rock salt. (The answer is a single, conical pile 100 ft. in diameter at the base, and 31 ft. high.)

Diagrams of two basic rock-salt-storage piles. Conical at left, windrow at right. Note 32° bevel, which applies to both types.

In many plants, however, it is not possible to store salt in one large, conical pile. Instead, it must be stored in a lower, longer, windrow-shaped pile. In this case, International's computations on storage-space requirements apply equally well. The data in the tables permit you to select the height or length of windrow pile best suited to your plant needs.

Again taking the example of 3,000 tons of salt: It can be poured from a portable conveyor belt into a pile 65 ft. wide at the base, 20 ft. high, and 100 ft. along the crest. Or, if such a pile doesn't suit your plant needs, the same tonnage can be stored in a pile 75 ft. wide at the base, 23 ft. high, and 55 ft. along the crest.

Easy way to check tonnage of any salt pile. A problem often encountered by salt-using companies is how to determine the amount of salt in a given storage pile. Here again, International's complete tables will quickly give the answer. Because each measurement in a symmetrical salt pile bears a fixed relation to every other, it's possible to find every measurement when only one is known. Thus, a conical pile 16 ft. high will contain 368 tons of salt.

There is still another way in which International's salt-storage tables are helpful. If you want to cover an outdoor pile with tarpaulin or tar paper, you can easily find the surface area of the pile. For example: the surface area of a conical pile 45 ft. in diameter is 1,870 sq. ft. These comprehensive tables are included in a booklet, "Brine for Today's Industry," which will be sent to you at your request. Simply contact International.

DATA GIVEN IN INTERNATIONAL'S SALT-STORAGE TABLES

Given any amount of rock salt, from three to 23,000 tons, you can find these storage-pile measurements at a glance:

1. **Height.**
2. **Base Diameter.**
3. **Base Area.**
4. **Surface Area.**
5. **Volume.**

The same data apply to windrow segments. And because each measurement bears a fixed relation to every other, you can find every windrow measurement if you know just one.

TECHNICAL SERVICE WITH YOUR SALT

Through skilled and experienced "Salt Specialists," International can help you get greater efficiency and economy from the salt you use. International produces both Sterling Evaporated and Sterling Rock Salt in all types and sizes. And we also make automatic dissolvers in metal or plastic for both kinds of salt. So we can recommend the type and size of salt most perfectly suited to your needs.

If you'd like the assistance of an International "Salt Specialist" on any problem concerning salt or brine—or further information on space needs for rock salt storage—just contact your nearest International sales office.

International Salt Co., Scranton, Pa.

Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; and Richmond, Va.

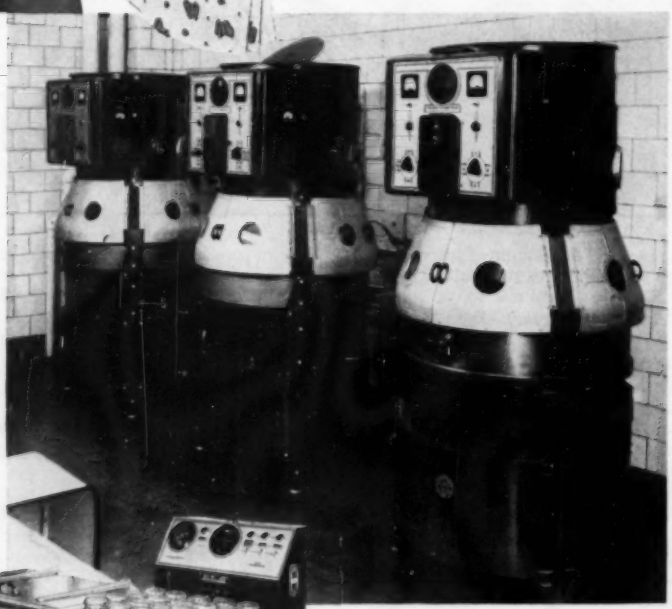
FOR INDUSTRY, FARM, AND THE HOME—

STERLING SALT

PRODUCT OF INTERNATIONAL SALT CO., INC.

Will it Fade?

BE SURE with FADE-OMETER® and LAUNDER-OMETER® tests



A battery of Fade-Ometers at Sears, Roebuck & Co. laboratory

Launder-Ometer
Standard testing machine
of the A.A.T.C.C.

New dye colors, new fibers, yarns, prints, and the many combinations of dyestuffs all present the question of color fastness, reaction to light laundering detergents, shrinkage, bleeding and mechanical action.

Atlas-Ometer tests provide reliable, factual answers. Precision controls in the Fade-Ometer and Launder-Ometer permit careful regulation of all factors. Any test program can be duplicated exactly whenever desired in the development of a product or for quality control in production.

Dyestuffs and fabrics that stand up in Fade-Ometer and Launder-Ometer tests, will prove satisfactory in service. Producers of soft goods who can give a specific color fastness rating to the product have a sales advantage both pricewise and in consumer acceptance.

ATLAS ELECTRIC DEVICES CO., 4114 N. Ravenswood Ave., Chicago 13, Ill., U. S. A.

Sales representatives in principal cities throughout the world.

CONTINUED FROM PAGE 212

"The first traveler is run 1 hr. at one-third normal speed. The next traveler is run 2 hrs. The running interval is doubled with each change until a 144-hr. interval is reached.

"When travelers are running 144-hr. intervals satisfactorily, we begin to speed up the frame gradually in increments of 10% until full speed is reached."

Mill 10—"Rings are broken in with the traveler normally used for 2s to 36s yarn. Full spindle speed is 9,000 rpm.

"New spinning rings are wiped clean with card strips and lubricated with coconut oil. The frame is started up at 30% lower speed than normal. The traveler-changing schedule is:

Traveler change	Running time (hrs.)
1	½
2 to 4	1
5 to 9	1½
10 to 14	2
15 to 20	8
21 to 25	16
26 to 30	32
31 to 40	48
41	72

"The frames are then gradually brought up to 9,000-rpm. spindle speed; and when this speed is reached, the changing interval is stabilized at once every 72 hrs."

Mill 11—"We wipe off new rings with a dry rag but never wash or oil them. Rings are broken in at standard operating speeds. We start new rings with travelers that are three or four numbers lighter than are normally used and change the travelers every 8 hrs. for three days. Then we increase the weight one number at a time until standard weight is reached."

SLASHER DRYING CAPACITY

CONTINUED FROM PAGE 146

higher than the average.

To convert the operating speed into the drying rate (pounds per hour):

$$\frac{\text{Speed (yds. per min.) x number of ends}}{\text{Yarn No. x 14}}$$

To convert the drying rate into operating speed (yards per minute):

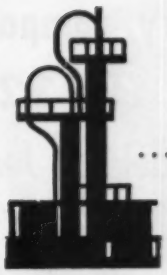
$$\frac{\text{Rate (lbs. per hr.) x yarn No. x 14}}{\text{Number of ends}}$$

Net production of the slasher is the drying rate multiplied by the percent efficiency.

LARGE CRYSTAL

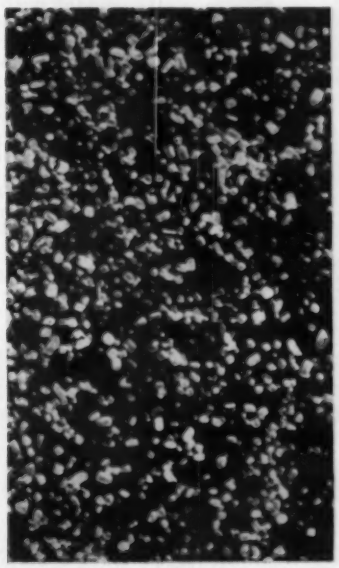
for radiator cleaners, wood bleaches

3X



...OR FINE CRYSTAL

for process use



3X

GENERAL CHEMICAL

Oxalic Acid

offers 4 important advantages to repackers and industrial users . . .

1. Unvarying purity: Always assays a minimum of 99.2% $C_2H_2O_4 \cdot 2H_2O$.

2. Uniform crystal size: Flows more freely, has less tendency to form agglomerates, gives better performance.

3. Top-quality appearance: Clear, colorless crystals always have exceptional sparkle and top-quality look.

4. Coast-to-coast service: Readily available from General Chemical's nationwide network of conveniently located distribution points.

Get a superior product *plus* efficient, dependable service. Specify General Chemical Oxalic Acid. Available in easy-to-handle 100-lb. bags and 400-lb. fibre drums. Call or write today!

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ALLIED CHEMICAL & DYE CORPORATION

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NOW... see, try, compare the all-new ORDNANCE OTSA 32", 32-feed high production model for Jersey fabrics

OGA
OTA
OTSA

• NOW . . . ORDNANCE brings you a major improvement in circular fully automatic knitting machines — the new OTSA 32" model with 32 FEEDS! For *really* fast output of top quality Jersey with 1" x 1" rib border here is an incomparable production unit . . . the answer to low unit cost, top operating profit. Check *many* exclusive features such as 2-speed drive, high speed (15 RPM), simplicity and accessibility of all removable and replaceable assemblies, and replaceable forecut walls on both cylinder and dial.

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Brooklyn, N. Y.

ORDNANCE GAUGE COMPANY
AMBER & HAGERT STS., PHILA. 25, PA.

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CIRCULAR FULLY AUTOMATIC
KNITTING MACHINES

HAE OG 362-357

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CHAPMAN
STOPS STATIC
Instantly & Completely

SAFE TO USE • NO HARMFUL RAYS
OR GASES • LOW COST OPERATION
YEARS OF TROUBLE-FREE SERVICE
EASY TO INSTALL • INEXPENSIVE

A MODEL FOR
MOST EVERY
TEXTILE
STATIC PROBLEM!

The Portland Company 28 FORE ST., PORTLAND, MAINE
WRITE FOR BULLETINS & DETAILS . . . . . *Now!*

PICKER-LAP VARIATION

CONTINUED FROM PAGE 148

caused by definite patterning, overhaulers can take out all lost motion in the drive from the evener motion forward. Don't let chains run too slack, and don't have too much play in the gears or studs.

Weight Range Is Too Great

A lap is good if the weight range, determined electronically, does not exceed 1½ oz. per yd. (This range cannot be compared with the range in actual weight as determined on a weighing lap tester.)

The lap from the No. 1 picker shows a range of 4 oz. per yd.; from the No. 5 picker, the range is 3½ oz. per yd. For both laps, the weight increases steadily from the beginning to the ending of the lap. The weight for about 12 yds. at the outside of each lap is relatively stable, probably because this part of each lap picked up moisture after the laps were taken from the picker.

The average weight per yard of the lap from No. 1 picker is 14.0 oz.; and from No. 5 picker, it is 13.5 oz.

The steady increase in weight could be caused by one of two things: either the pickers do not have enough tension on the lap in the calender section or the 14-tooth gear on the end of the third calender roll in the drive to the draw rolls does not give enough tension between the draw rolls and the top calender roll. This tension could be increased by changing the 14-tooth gear to a 13-tooth gear.

Other possible causes of the increase in weight are feeding too much stock to the blending reserve or packing it too tight somewhere back in the line. Either action would cause the density of the cotton in the lap to increase.

It also is possible that humidity may have increased the weight, but this cause is unlikely in this case. It is more likely that changes in humidity would affect tension throughout the lap than within part of the lap, and further tests are suggested to confirm or deny this possibility.

Lap Lengths Vary

Yardage tests show the No. 1 lap to be 60 yds. long and the No. 5 lap to be 62 yds. long. Since: (1) these two pickers have different types of calenders, (2) total lap weight is the same, and (3) weight per yard is consistent with total weight and yardage, it is probable that the knock-off gearing is different on the two pickers. The correct yardage could be obtained by changing the knock-off gear on the No. 5 picker.

CONTINUED ON PAGE 218

Fact 1

Once in a while a better product is made, and made so well, that it becomes the standard by which all similar products are judged.

Fact 2

The preference that you and millions of other users have shown for the RIGID Pipe Wrench puts on us the responsibility of keeping it always up to the top quality you expect of it.

The Ridge Tool Company, Elyria, Ohio, U. S. A.

STATIC

SIMCO GUARANTEES ITS ELIMINATION!

The SIMCO "Midget" will eliminate static effectively . . . safely . . . inexpensively . . . under *all* operating conditions! SIMCO has a complete line, including new "shockless" bars which are safe even in inflammable atmospheres.

the SIMCO company
920 Walnut St.
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Send today for information.

SIMCO COMPANY
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LANSDALE, PENNA.

Please send me information about the SIMCO "Midget".

Company.....

My name.....Title.....

Street.....

City.....Zone....State.....

Type of machine:.....

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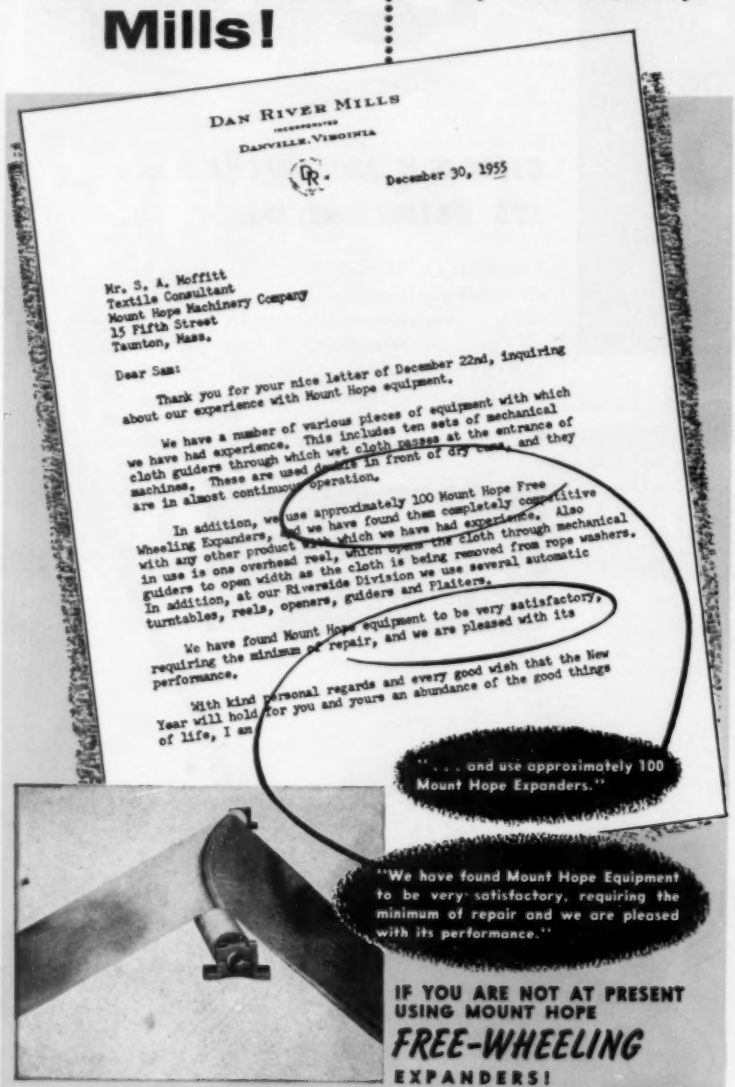
THANK YOU... Dan River Mills!

We are glad that Mount Hope "Free-Wheeling" Expanders have proven satisfactory!



DAN RIVER MILLS
INCORPORATED
DANVILLE, VIRGINIA

December 30, 1955

Mr. S. A. Moffitt
Textile Consultant
Mount Hope Machinery Company
15 Fifth Street
Taunton, Mass.

Dear Sam:

Thank you for your nice letter of December 22nd, inquiring about our experience with Mount Hope equipment.

We have a number of various pieces of equipment with which we have had experience. This includes ten sets of mechanical cloth guiders through which wet cloth passes at the entrance of machines. These are used [illegible] in front of dry cans, and they are in almost continuous operation.

In addition, we use approximately 100 Mount Hope Free Wheeling Expanders, and we have found them completely competitive with any other product with which we have had experience. Also in use is one overhead reel, which opens the cloth through mechanical guiders to open width as the cloth is being removed from rope washers. In addition, at our Riverside Division we use several automatic turntables, reels, openers, guiders and Plaiters.

We have found Mount Hope equipment to be very satisfactory, requiring the minimum of repair, and we are pleased with its performance.

With kind personal regards and every good wish that the New Year will hold for you and yours an abundance of the good things of life, I am

". . . and use approximately 100 Mount Hope Expanders."

"We have found Mount Hope Equipment to be very satisfactory, requiring the minimum of repair and we are pleased with its performance."

IF YOU ARE NOT AT PRESENT USING MOUNT HOPE

FREE-WHEELING

EXPANDERS!

. . . to keep fabrics smooth, at full width and without distortion wherever goods are rolled, nipped, dyed, washed, dried or batched — if you want to cut losses, eliminate waste, lower manufacturing costs and increase production.

MOUNT HOPE
MACHINERY COMPANY
50 FIFTH ST., TAUNTON, MASS.

SEND FOR FREE BULLETIN #8244 ON MOUNT HOPE EXPANDERS OR MAKE AN APPOINTMENT WITH A MOUNT HOPE ENGINEER.

Plants at Taunton, Mass. and Charlotte, N. C.

CONTINUED FROM PAGE 216

The lap from the No. 1 picker is heavy on the left-hand side of the picker. The lap from the No. 5 picker appears to be slightly heavy on the right-hand side. Adjusting the lap racks and the dampers of the finisher-screen section may correct this condition.

Picker start-ups are excellent. Both laps are heavy only within the last half yard. Therefore it is perfectly safe to run the laps on the cards to within ½ yd. of the tail end.

DYEBATH CONTROL

CONTINUED FROM PAGE 152

a thermometer in the bath.

With the two vital factors of temperature and reduction potential under constant measurement, many of the problems of maintaining the right shade at acceptable costs have been solved.

How Standard Operates

For most of the light and medium shades that Standard Bleachery dyes, the vat-acid method is used to prepare the dyebath. Goods are padded in the vat-acid mix; and then they go to the chemical pad for reduction. The shade is developed in a steamer. Oxidation with sodium bichromate and a final soaping and rinsing complete the operation.

The details of control extend beyond the measurement of dyebath potential. Standard's boss dyer, Tom Hannah, has accumulated thousands of basic formulas for as many vat shades. They are all based on carefully weighed or measured ingredients.

Further control of the rate of flow is maintained at the dyeing range, where a flow meter indicates the flow of caustic in pounds per hour; and hydro is delivered by an adjustable feeder at a rate determined by long experience with the different formulas.

A typical dye bill for a run of an 80-square fabric to be dyed pink looks like this:

For a 225-gal. bath in dye pad:

Red FBBWP	3.565 lbs.
Agent GL	0.357 lbs.
Lomar	16 lbs., 4 oz.
Caustic 34° Tw.	11 lbs., 4 oz.
Hydro	11 lbs., 4 oz.

Reduce 15 mins. at 120° F.
Add quickly:

Acetic acid 56%	18 qts.

Make up to 225 gals. at 80° F. and add:

CONTINUED ON PAGE 221

Heard from Sandoz on dyeing Polyester fibers?

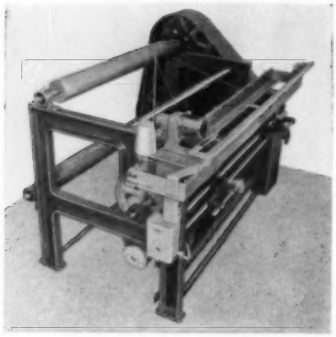
For polyester fibers alone, or for blends with viscose or cotton, Sandoz Artisil Ultradispersed® dyes are an effective answer. Particles are so fine and so well dispersed that good leveling and penetration are assured. Artisil Ultradispersed dyes are strongly recommended for fabrics which will be heat treated. Where blends with cotton/viscose are to be over-dyed with vats, they are perfectly resistant to the reagents in the vat dye bath.

In the use of these exceptional Sandoz dyes, the active cooperation of Sandoz technicians is at your service. Bring your next dyestuff question to SANDOZ, INC., 61-63 Van Dam Street, New York 13, N. Y. ALgonquin 5-1700.

SANDOZ

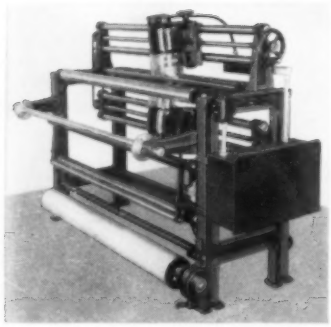
THINKS AHEAD WITH TEXTILES

SANDOZ

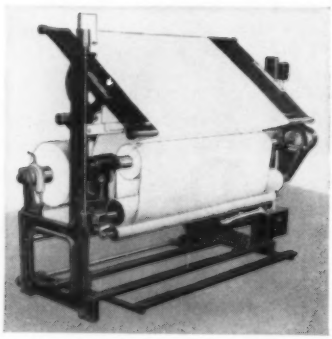


DUPLEX SEWING AND WINDING MACHINE sews loom rolls together for continuous shearing

SELVAGE LOOP CUTTER prepares cloth for shearing



M-125 SHEAR for synthetic and cotton fabrics



S 2A UNISPEED INSPECTOR for synthetic fabrics

Your finished fabric represents your most expensive item . . . so waste here is more costly—both for labor and materials—than in any other operation in your mill. Thus, your answer is better cloth finishing . . . overall cost is small, but improvement in the appearance and the cleanliness of your cloth is great. If you agree . . our engineers are ready and qualified to help you.

CURTIS & MARBLE MACHINE CO.

Since 1842 Serving the Textile Industry for more than 125 years

72 CAMBRIDGE STREET • WORCESTER 3 • MASSACHUSETTS

SOUTHERN SALES & SERVICE • SOUTH CAROLINA NATIONAL BANK BUILDING, GREENVILLE, S.C.

Nekal BX	1 lb., 11 oz.
Hydro	2 lbs., 4 oz.

The chemical, or No. 2 pad, is charged with:

10 gals. pad liquor
4½ gals. caustic 34° Tw.
13½ lbs. hydro

Temperature is set at 100° F.

When the run is started, caustic at 34° Tw. strength is started to flow into the chemical pad at a rate of 60 lbs. per hr. and hydro is fed at a rate of 7.8 lbs. per hr. for this particular shade.

These conditions produce a potential of 865 millivolts on the Foxboro instrument. The operators keep tabs on the situation to see that this potential is maintained during the run.

Hannah has this to say of the control method, "It is most useful in setting up formulas and gives us a constant indication that bath conditions are right for the shade involved. Coupled with known rates of feed for caustic and hydro, the system has helped us lick shading problems that used to be a major headache."

ROUND TABLE

CONTINUED FROM PAGE 10

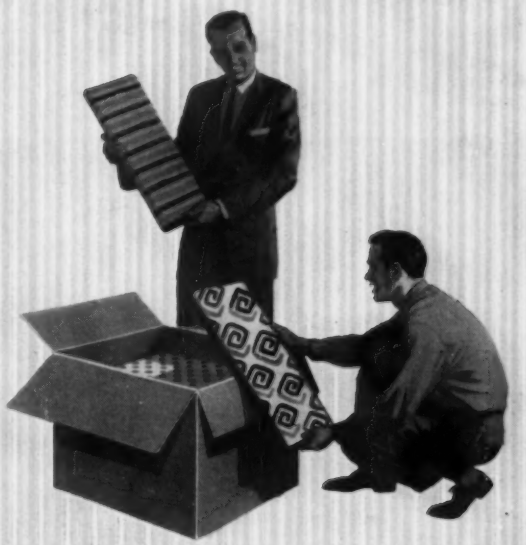
traction. Further, they stand as a bar to expansion and an important factor in determining whether there shall be even further contraction.

You say "the mills tried to blame too much on imports." The fact is, as noted above, we said they were a contributing factor. Spokesmen for the Textile Workers Union called this far too modest a claim. In any event, the issue is whether imports of wool textiles threaten security. Obviously the impact of imports increases as the industry contracts.

You say "it was not clear from their (the mills) presentation exactly what they wanted". Perhaps the answer is so simple it escaped notice. We asked ODM to investigate our belief that wool textile imports threaten security. At the hearing, Edwin Wilkinson, executive vice president of NAWM, said in part: "We are not asking for any specific remedial action on a situation affecting our interest alone . . . This problem is beyond our private interest because national security is involved".

He also said, "if our reasons for concern stand up under your scrutiny . . . we believe your course is clearly prescribed: ODM must advise the President that wool textile imports threaten to impair national security . . . If you conclude that our concern is not valid there is nothing for you

"The box is crease-resistant, too!"



No more wrinkled bolts with smudged edges when you pack your fine fabrics in rugged H&D corrugated boxes. Like to see proof? Better see H&D.

HINDE & DAUCH

Subsidiary of West Virginia Pulp and Paper Company

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14 FACTORIES • 42 SALES OFFICES

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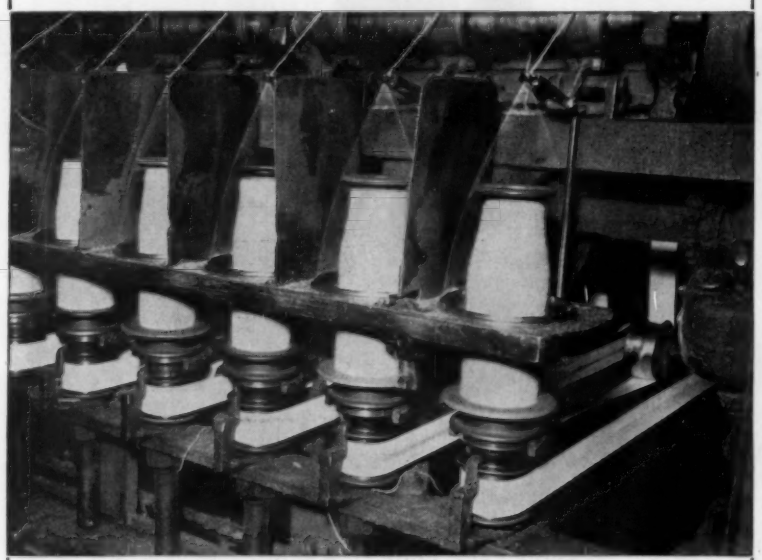
Originators of STRIP-O-MATIC
Booth
CARD CLOTHING

FIRST . . . . . STRIP-O-MATIC
SECOND . . . . . SUPR-O-TAPE
Now... SUPR-O-BAND



SUPR-O-BAND, the new banding for spindle drives on spinning, twisting, and roving frames. Promises to be as successful as SUPR-O-TAPE that revolutionized woolen condensing "over night."

ALREADY PROVED by more than a year of rugged mill tests. Note these plus features:

- IMPROVED QUALITY
- LOWER POWER CONSUMPTION
- INCREASED PRODUCTION
- MORE ECONOMICAL

BECAUSE . . . SUPR-O-BANDS Give:

- OPTIMUM SPINDLE SPEED
- LONG LIFE
- UNIFORM TWIST
- MAXIMUM FRICTION—NO SLIPPAGE
- LOWEST COST

SUPR-O-BANDS are lint-free; use belt-hooks or stitching.

- STRIP-O-MATIC CARD CLOTHING
- CONVENTIONAL CARD CLOTHING
- SUPR-O-TAPE FOR CONDENSERS

BENJAMIN BOOTH COMPANY
ALLEGHENY & JANNEY STS., PHILA. 34, PA.
Booth

to deny to us other than our request that you make full investigation".

Without knowing mobilization needs for wool textiles, it would be difficult indeed to suggest the specific action which the President might take. Further, the remedy is not within ODM's province. The hearing examiner put it this way: "The single function of the Director of ODM, and therefore of this hearing, is to determine whether imports threaten the national security, not what may be done about them."

This statement also should clear up your confusion as to the purpose of the hearing, which you said "was to uncover facts about damage to mills by imports."

You seemed to feel that it was beside the point to talk about the essentiality of wool textiles. However, if wool textiles were not essential, the ODM would have no interest. Further, some stress was put on this point because of ODM's decision in the cordage case, with which you apparently are not familiar.

We would be pleased to let you examine the transcript of the hearing, which I believe, would clear up the misconceptions I have mentioned and others as well that appeared in your article.

GORDON GRAHAM
Public Relations Advisor
National Association of Wool Manufacturers
New York, N. Y.

FULL-FASHIONED MACHINES

CONTINUED FROM PAGE 155

brushes to insure a good firm pressure to hold them against their armatures. Check the screws holding these springs because they sometimes vibrate loose. They should be evenly spaced around the armature.

These brush holders are set at the factory in the proper position and should never be changed except by an experienced engineer. Keep the brush holders and armatures clean and dry with air pressure.

There will be an occasional accumulation of oil under the drive motor, and it should be removed before the brush holders are blown out. Be careful not to get oil on the brushes or the armature.

Clean the Air Filters

Remove the air filters, dip them in a good cleaning solution, and blow them out.

When you replace tubes, take care not to damage the plate caps. And

at Woodside Mills, Liberty, South Carolina...

Stainless steel is a "must" for dye equipment

Corrosive dye chemicals, including caustic soda, muriatic acid, and sulfuric acid, are in contact with this 4-kier beam and package dyeing machine at Woodside Mills. But the equipment fights off corrosion, even at welds, because it is made of Armco 18-8 ELC Stainless Steel.

"Stainless steel is tops for beam and package dyeing," says Mr. Walter A. McJunkin, Overseer of Dyeing at Woodside Mills, Liberty, South Carolina.

"With stainless steel dye machines we obtain best dyeing results—have fewer work stoppages due to equipment troubles—and lose very little time in cleaning between dye runs."

ELC Stainless For Weld Protection

To insure extra life in contact with corrosive dye chemicals, the 4-kier beam and package dyer above was made from Armco 18-8 ELC (Type 304L) Stainless Steel. Because this special grade contains very little carbon (.03 max.), carbide precipitation adjacent to weld beads is minimized. This means that weld areas fight off corrosion just as well as the rest of the stainless steel, even at dye machine operating temperatures.

If corrosion alongside welds is a major maintenance problem in your mill, ask for information about Armco 18-8 ELC and its even more corrosion-resistant companion grade—18-12 Mo ELC Stainless Steel. For more data, just fill in and mail the coupon.

ARMCO STEEL CORPORATION
1917 Curtis Street, Middletown, Ohio

Send me more information about Armco ELC Stainless Steels.

Name_____ Title_____

Firm_____

Street_____

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ARMCO STEEL CORPORATION

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Fairbanks 9215-S General Purpose Truck The necessary "tool" in shipping rooms, unsurpassed for handling small lot merchandise. Steel-framed construction combines strength of steel with resilience of wood.
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Just think of trucks as tools. Then you instantly recognize that the right trucks must make lighter work of materials handling. Your men with the right tool—the right truck—do more with less effort and with *greater safety*. You realize surprisingly large time and cost savings. Select your COST-CUTTER Truck now from Fairbanks complete line of Two Wheel and Platform Hand Trucks. Always specify Fairbanks Trucks for the rugged construction and smoother operation that brings added savings in long-lasting dependable service. Fairbanks Trucks are available from leading distributors in all the principal cities.

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Fairbanks "Bantamweight" Platform Trucks
Sturdiest, lightest, easiest moving truck for all light duty applications. Unmatched value — costs less to buy, less to run.

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when you replace tube numbers 3C23, 866A, or NL714, allow a 15-min. warm-up period after you turn the main switch on and before you start the machine. The new tube may be burned out immediately or weakened if the warm-up period is not observed. These tubes are filled with gas, and this warm-up period is necessary for the gas to vaporize.

Inspect and clean the motor and armature bearings. Pump a small amount of grease of the grade and weight recommended by the manufacturer into the bearings. Do not overgrease because the grease may run out and get on the armatures and brushes.

If the power-supply voltage into the plant varies more than 10%, call the power company to correct the condition. If the power goes off during an electrical storm, switch off all machine switches in the plant and leave them off until the power is restored.

By using a voltmeter-ohmmeter, you can avoid useless replacement of parts commonly caused with hit-and-miss methods. Every electrical part on the knitting machine and on the control panel can be checked with this meter without removing any operating parts.

Have an experienced electrician teach fixers the proper use of this meter to trouble shoot all the electrical parts of the drive and other electrical apparatus. Here's how to use the Triplett milliammeter-voltmeter-ohmmeter N. 666R on Reliance drives:

Certain precautions must be taken when you use this meter to check knitting machines when the power is on. You must know if the voltage you are checking is a.c. or d.c.

If you are checking d.c. voltage, there is a danger of bending the hand on the dial of the meter. If you reverse the polarity by connecting the negative wire from the meter to a positive post and the positive wire from the meter to a negative post, the dial hand will try to move to the left and bend itself.

To prevent this danger when you check d.c. voltages, just touch the wires from the meter to the posts you are checking for a split second until you see that you have the polarity right; then the dial hand of the meter moves to the right.

There is also a danger of overloading the meter and bending the dial hand when it tries to go too far to the right. To prevent this danger, plug the red wire into the 5,000-v. post on the meter. Plug the black wire into the post on the meter marked COM.

Turn the meter knob to 1,000 to

Uniformity Is No Accident

Quality control can never be a push-button operation in the textile field. That goes for starch, too. So the uniformity of Victor Mill and other Keever starches is constantly checked and rechecked.

The Keever sales-service man who works with you is a trained specialist in mill problems. But he doesn't work alone.

Plant problems are thoroughly discussed in staff meetings. And behind this contact group are some 40 textile engineers, chemists, and technicians with one objective — to help improve your production.

THE KEEVER STARCH COMPANY
GENERAL OFFICES - COLUMBUS, OHIO
Processors of corn, wheat and blended starches for industry since 1898

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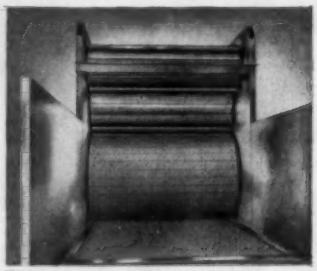
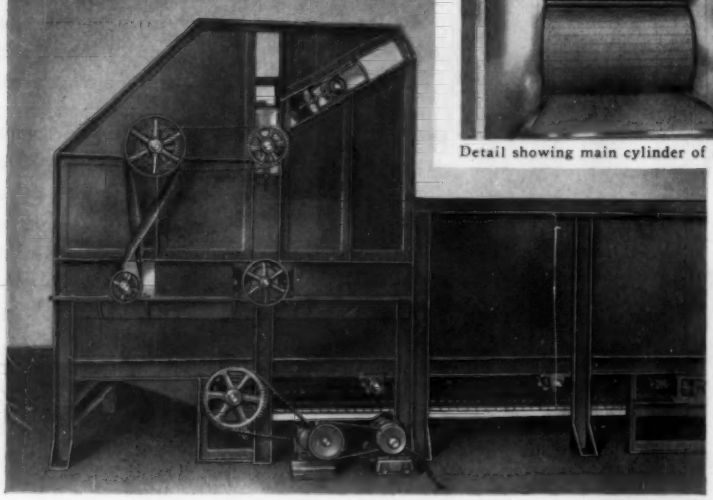
from Opening Room to Dye House

NOW! SMOOTHER OPERATION THAN YOU'D EVER DREAMED POSSIBLE

SARGENT'S



Detail showing main cylinder of opener



NEW HEAVY DUTY OPENER
with Rotary Evener and Stripper

delivers to the next succeeding process a more open, lofty fibre than ever possible with conventional-design openers.

Rotary drives replace the usual oscillating movement of evener and stripper rolls . . . exceptionally rugged construction insures less maintenance, longer life, reliable production quality of 2000 to 3000 pounds per hour

. . . no feed rolls hold fibre while being picked, resulting in semi-combing action and fewer neps at the card . . . rolls adjusted to intermesh pins, providing continuous stripping . . .

From opening heavy grease wools for better picking and cleaning, to opening compacted dyed fibres — natural or synthetic — for better drying, here's a really modern-design opener to guarantee a superlative job.

Want more information? Write your nearest representative or write us direct. And ask for Bulletin No. 202.

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5,000 a.c. or d.c., according to the instruction book, and check the voltage. Keep in mind that the polarity must be correct on d.c. voltage.

If you get no reading on the dial, remove the red wire from the 5,000-v. post on the meter and plug it into the V-O-MA post. Leave the meter knob still on 1,000 to 5,000 v. and check the voltage again.

If you still get no reading, turn the meter knob to 250 and check it again. If the dial hand then moves just a little, turn the knob of the meter to 50 so that you get a reading of the dial hand on the right side of the dial for greatest accuracy. Don't forget that you mustn't overload the meter. Don't turn the meter knob to DCMA.

How To Check Circuits

To check the circuits, all power must be off. Remove the main fuses for the machine if it is individually wired. Plug the black wire into the COM post of the meter and the red wire into the V-O-MA post of the meter.

Set the meter knob to XI,000 OHMS position. Touch the two wires from the meter together, and the dial hand should swing all the way to the right and line up with the zero on the dial. If the hand doesn't line up, adjust the instrument by turning the OHMS-ADJ button until the dial hand does line up with zero.

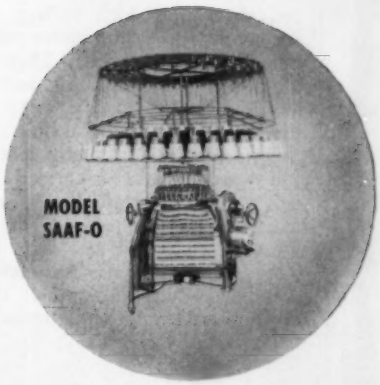
You get this zero reading when you check coils, switches, and fuses that are okay. When you check coils and switches, remove either of their two connections, place the loose connection to either of the meter wires, and place the other meter wire to the unconnected post. Fuses may be removed and checked instantly.

Don't touch the wires of the meter to a live wire when it is set on the OHMS position.

How To Check Condensers

To check a condenser, cut loose one of the soldered wires. Short the condenser by connecting its two posts with a wire or a screwdriver for several minutes because a charge may be left in it. If this precaution is not taken, the meter may overload and you may get a shock if you touch it although the power may have been off for some time.

The reading of a good condenser will surge the meter dial hand to the right, and it will drop back to the left. Should the meter hand go all the way to the right and stay as it does in checking other circuits, there is a short in the condenser. If you get no



These features make

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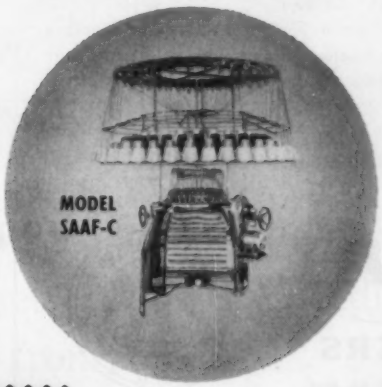
the latest word in modernized, low-cost knitting
of automatic, variable striped, patterned or solid jersey
***with* or *without* knit-on simulated rib trim**
and draw thread section separators



HIGH SPEED PRODUCTION

Large number of feeds, rugged construction and stationary yarnstand give you vari-striped and patterned fabrics at unprecedented rates. Standard 26" machine has 32 four color striping boxes — 32 three position pattern wheels—32 automatic pattern placers.

TREMENDOUS VERSATILITY

Striping boxes, pattern wheels and placers on every feed let you pour out an infinite variety of striking, multi-colored fabrics — with pattern inserts twice the size previously possible. Knit a wide variety of fabric construction and textures with virtually any type of natural or synthetic yarn.

HIGH QUALITY AT LOW COST

Knitting efficiency and quality are insured by these ingenious new features—128 cone, "step-design" (Pat. Pend.) yarnstand, new knitting elements system, new striping box with easy, manual setting, new pattern placer with slideable studs for fingertip control and new, scissor-type, synchronized "no-waste" cutters.

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Ask For This FREE Booklet On
SUPREME'S NEW "PAY-AS-YOU-DEPRECIATE" FINANCING PLANS
The PAYD Plan

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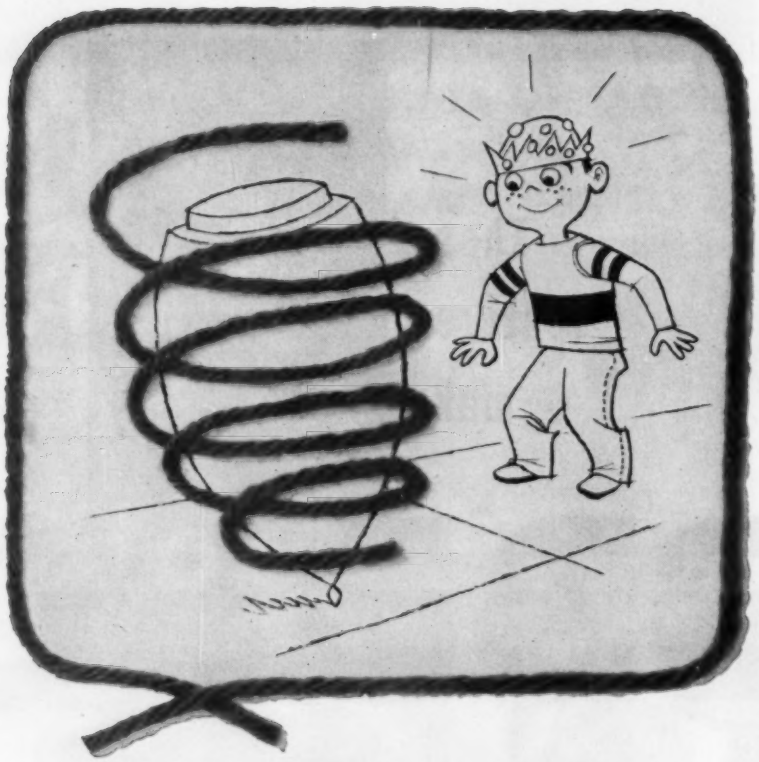

TOP SPINNING PERFORMANCE...

Tired of toying with travelers that fall short of your spinning and twisting requirements? Play it smart and look into National-Sterling Ring Travelers now!

Whether you're running cottons, wools, synthetics or blends, you'll find that National Travelers consistently deliver more pounds of first class yarn . . . at higher spindle speeds . . . with fewer ends down. Each is designed to meet your highest standards for precision balance, uniform weight, temper and finish.

Plan now to let an experienced National-Sterling Engineer help you select the right travelers for your particular spinning or twisting operation. Write, wire or phone National Ring Traveler Company and Sterling Division, 354 Pine Street, Pawtucket, R. I. Southern Office and Warehouse: P. O. Box 293, Gaffney, S. C.

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reading at all, the condenser is bad.

If you are checking an unknown voltage, remember to have the meter set on the highest voltage to start. If you check very high voltage, make the connection to the meter with the power and meter off. Then turn the power on for a reading, and don't handle the wires or the meter until the power is turned off again.

This meter is perfectly safe after you learn to use it correctly. But it is a good idea to have all power off when any part is checked. The power must be off if the part is to be replaced. After you use the meter, remember to turn the knob to the off position to keep the batteries from being ruined.

BAN-LON SWEATERS

CONTINUED FROM PAGE 129

dyeing. These buttons are removed when the sweaters are returned from the dyers and are replaced with new buttons.

Labeling is done on a Wilcox & Gibbs chain-stitch machine with a Cyclomatic device to stop the machine automatically with the needle in its high position. The operator does not have to turn the handwheel, and the sewing job is done much faster.

Each sweater is pressed before it is thermoset and dyed, and another pressing follows dyeing. Havsy's Ban-Lon sweaters are dyed 15 colors. These colors are sorted according to the order, and each sweater is carefully examined. Faults are repaired by experienced menders, and the goods are made ready for packing.

VIGOUREUX PRINTING

CONTINUED FROM PAGE 147

shades of premetallized or acid colors and 10 to 15 psi. for premetallized or acid blacks and all chrome dyes.

Steam should not be allowed to escape too freely from the steamer because both solvent and volatile acid may be lost before dye fixation is complete.

Different dyes have different rates of fixation; so the figures in Table 2 are only approximate. Many light shades will require less than the suggested time, others may need more. Some acid blacks may require more time than has been suggested.

In general, however, the combination of a dye solvent plus higher steaming pressures cuts total processing time considerably.

BESIDE YOURSELF over needle problems? You needn't be —when you can get top-quality needles for knitting, sewing, felting or tufting from . . .

THE TORRINGTON COMPANY

Torrington, Conn., U.S.A. Branches in New York, Philadelphia, Boston, Chicago, Greensboro, St. Louis. Pacific Coast Representative: E. G. Paules, Los Angeles

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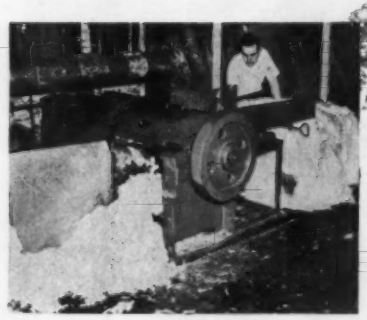
USE TAYLOR-STILES *Textile Cutters for:*

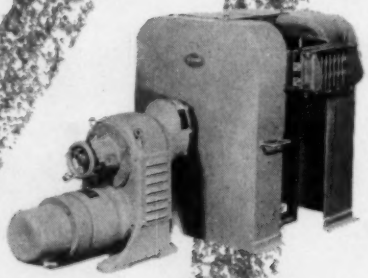


THREAD WASTE . . . . . .

With Taylor-Stiles special cutting design, thread waste will be cut without fusing. This assures lump-free yarn that can easily be spun. One manufacturer reports "cutting 3000 pounds of nylon thread waste an hour". This, however, depends largely upon the number of men feeding the machine.

FIBER GLASS . . . . . .

Taylor-Stiles Cutting machines are widely used in the textile industry for cutting glass yarn. You will find by using Taylor-Stiles Knives in these machines you will be able to cut filament glass fiber into accurate staple lengths hour after hour and day after day.



TOW . . . . . .

You can readily cut nylon, rayon, and other synthetic and natural fiber tow, into uniform lengths varying from ¾" to 6" on a Taylor-Stiles Staple Cutters.

The operation is continuous, the rate depending on the size of tow and the length of the cut. Changes in length are quickly made by means of a vari-speed motor, or by changing sprockets when variations in staple lengths are infrequent.

Other design features of these Taylor-Stiles Cutters practically eliminate stock jamming. Should a jam occur, a clutch provides for immediate stoppage of the feed.

Write for our four page, two color brochure #201, today—illustrating and describing Taylor-Stiles Thread Waste and Tow Cutters.

TAYLOR, STILES & CO.

15 BRIDGE STREET
RIEGELSVILLE, N. J.

FABRIC PROCESSING

CONTINUED FROM PAGE 159

Coupling is complete in 15 to 20 secs. on light shades. Blacks and deep shades may require 5 mins. After dyeing, the goods are soaped lightly. The dyeings exhibit excellent fastness to washing and crocking.

To apply naphthols to nylon, the naphthol may be dissolved in the minimum amount of caustic soda and the base dispersed in the solution. However many bases do not work well under these conditions; and where such bases are required, it is best to apply the naphthol and the diazotized base from separate baths.

In these cases, diazotization is started at a lower temperature in the fluid bed but total coupling time does not exceed 5 mins.

Triacetate fabrics respond well to the dispersed naphthol-base bath used for Dacron.

How Blends Are Dyed

Blends of cellulosic and hydrophobic fibers have been dyed by the fluid-bed system with azoic, disperse, and Procion colors. Mixtures of 50% viscose and 50% Dacron can be dyed solid or contrasting shades by the single-bath padding process using naphthols and bases.

For example, a Dacron-viscose blend is padded in a naphthol-base dispersion and given a 20-sec. heat treatment in the fluid bed at 190° C. Then the shade is developed by treating the goods in a bath containing 10% owg. of Brentamine Fast Scarlet RC salt for a few seconds, after which the goods are soaped and rinsed.

A variation of this method consists of padding a Dacron-viscose-blend fabric in a dyebath containing 4% Brenthol AS and 4% Brentamine Fast Scarlet RC base. Then the goods are passed through the fluid bed at 190° C. for 20 secs.

The goods are then treated in a cold bath with Brentamine Fast Violet Salt B to couple the naphthol on the viscose.

To couple the Brenthol AS and Brentamine Fast Scarlet RC base present in the Dacron component, the fabric is treated in a hot sodium nitrite-hydrochloric acid bath for 5 mins.

After the coupling treatments, the goods are soaped. A two-tone violet and red color is produced from these dyes that is fast to washing and crocking.

Disperse colors and the Procion type of dye work well together in a continuous process in which the colors are padded on and the goods are passed through the fluid bed. A final soaping,

Now the most versatile chelating agent is also the lowest in cost

VERSENE 100

effective over a wide pH range, available from two stock points

Now—in solving metal ion problems—you can have your cake and eat it! Thanks to Versene® 100, a liquid concentrate of tetrasodium salt of ethylenediaminetetraacetic acid.

Stable to acids and alkalies even in boiling solutions, Versene 100 inactivates calcium, magnesium and other metal ions. It will not revert to an inactive form. Versene 100 ties up these contaminants completely within an inner ring structure . . . actually forms a new, harmless compound with hardness and trace metals in solution. Applications in textile and rubber processing, in chemical purification and boiler descaling, in soaps, syndets, all types of detergent formulations have proved Versene 100 the most versatile and effective chelating agent commercially available. And now, it's also the most economical! Available from two stock points at Framingham, Massachusetts, and Freeport, Texas.

Free new brochure!

To describe more fully Versene 100 and the several other Versene and Versenol* products for chelation, an informative 16-page brochure has been prepared for your personal use. You'll find it valuable. For instance, if iron ions were a contamination factor in your process or in your product, this booklet would quickly refer you to an iron-specialty agent such as Versenol® 120. A liquid, Versenol 120 complexes both ferrous and ferric iron over a wide pH range.

Fact is, you'll find this booklet's discussion of the chemistry of chelation, Dow chelating agents and their uses helpful in correcting any metal ion problem. With the Versene and Versenol products practically every metal ion in any solution can be chelated. Contact your nearest Dow sales office for "Keys to Chelation". Or write us direct. THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. CA 1313B-1.

*Trisodium salt of N-hydroxyethylethylenediaminetriacetic acid

YOU CAN DEPEND ON DOW

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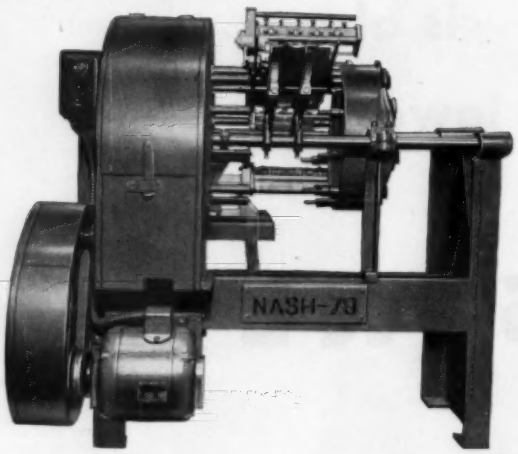
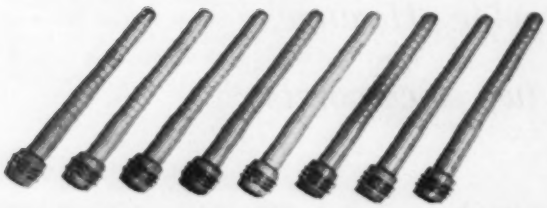
NASH

"Number Seventy-Nine"





The Only Machine That Cleans And Polishes Quills AUTOMATICALLY

Illustrated Bulletin Upon Request

ROUGH quills tear delicate filaments —increase production costs. Prevent broken picks with a NASH No. 79 Machine that polishes quills *automatically*. Standard equipment in leading textile mill operations.

SPECIAL FINISHING MACHINES · SINCE 1880 · NASH

J. M. NASH *Company*

2364 N. 30th Street • Milwaukee 10, Wisconsin

rinsing, and drying complete the process.

Nylon yarns can be singed in a fluid bed of ballotini heated beyond the melting point of the yarn. The yarn is moved through the bed rapidly so that only the outer filaments are affected by the heat. Spun-nylon yarns of 10s and 30s (cotton numbers) have been well singed by passing them through fluid beds heated to 280 to 290° C. with a contact time of 0.05 to 0.10 secs.

Rapid drying of latex-coated yarns is possible with fluid beds. Latex-coated yarns that have been stored usually pick up moisture and must be redried before they are bonded with rubber. Experimental work has shown that a latex-coated nylon yarn containing 11.1% moisture can be redried in 2 secs. by passing it through a fluid bed 1 ft. deep and heated to 200° C.

Yarns that have been freshly coated with latex can be dried in 3 secs. by passing them through a fluid bed heated to 275° C. The moisture content is brought down to 1.7 to 1.8% by this treatment.

To date much of the work with fluid beds has been on a laboratory or pilot-plant scale, but results at these levels have prompted a group of English textile-machinery manufacturers to start making plant-scale fluid beds.

QUALITY SHEETING

CONTINUED FROM PAGE 161

hauler helps with heavy jobs such as loomsides, shafts, and camshaft gears.

Warp men cut out and replace warps, but the loomfixers check the looms while the warps are out and start the new warps. The weavers tend 74 looms; batteryhands have 58 looms.

All the looms are cleaned with compressed air daily, one-third of the looms being blown off each shift. Drawing-in hands clean all the harnesses on the first shift every day.

Much cleaning is done on week ends while the looms are stopped. At this time the lights, walls, windows, ceilings, ceiling beams, and columns are cleaned.

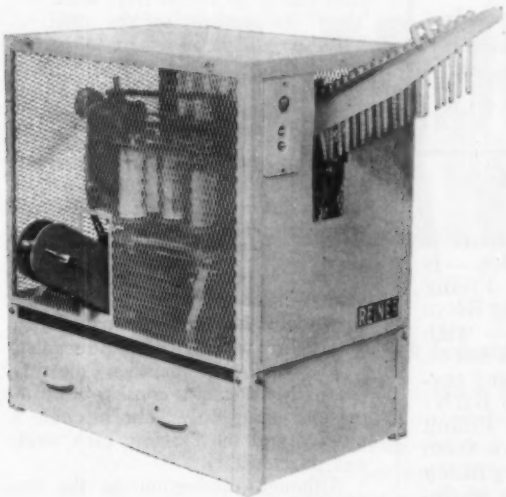
Cloth is doffed in 150-yd. rolls and carried immediately to the cloth room. The cloth is inspected as soon as possible. If any defects appear, a report is made to the weave room so the trouble can be corrected before the same type of defects can ruin another cut of cloth.

Loom efficiency is better than 95%, with less than 4% of this going into second-quality cloth. A relative humidity of 83% is maintained, and

NEW

labor-saving addition to the Reiner line

QUILL REFINISHER AND DEGREASER



Entirely new in concept—this compact, space-saving (3½ ft x 2 ft), precision built Reiner Quill Refinisher can handle 30-35,000 cleaned or polished quills a day—at practically no expense and without any additional labor cost. IT PAYS FOR ITSELF IN ABOUT 10 WEEKS.

Production-tested to run at a capacity of up to 23 quills per minute, the Reiner Refinisher employs a 4-station processing cycle which provides thorough cleaning of quill grooves and gives a highly polished surface without the use of harsh abrasives. Quills last longer, and there is a material reduction in broken or tight picks, split or fuzzy filling which means more profitable, uninterrupted loom production.

Designed to be fed directly from Terrell Stripping Machines (Models L or K) The Reiner Quill Refinisher requires no operator—thus providing a substantial saving in labor cost. Quills feed directly from the stripping machine to the Refinisher, are processed and then ejected by a small conveyor. The materials used by this machine last approximately 20 hours before being replaced.

The machine's 4-Cycle standard operation provides for cleaning at the first two stations and waxing and buffing at the third and fourth. However, its extreme versatility provides for any required combination of 4 separate and distinct operations, i.e. straight cleaning to remove grease, or cleaning and waxing, etc. The Reiner Refinisher permits the polishing of sections of quills—such as tips, shanks, ferrules or any combinations wanted.

Constructed from the finest materials, with a sealed motor, the Reiner Refinisher will give many years of trouble-free service.

Adjustments and conversions from one operation to another can be readily and speedily made by a quill fixer.

THIS MACHINE CAN BE SEEN IN OPERATION AT THE REINER DEMONSTRATION ROOM IN WEEHAWKEN, NEW JERSEY.

IT PAYS FOR ITSELF IN ABOUT TEN WEEKS

ROBERT REINER, INCORPORATED

telephone: UNion 7-0502 - *from New York City call:* LOngacre 4-6882

Only 10 minutes from Times Square by direct bus.

WEEHAWKEN, NEW JERSEY

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BENNETT ROSE COMPANY

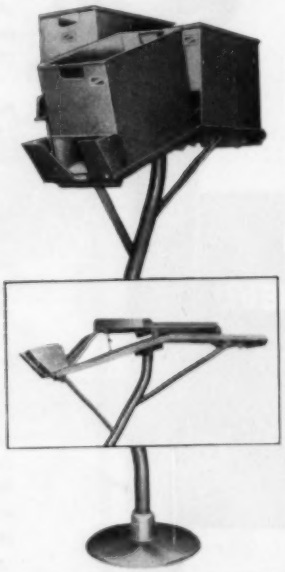
MATERIALS HANDLING EQUIPMENT

WILL CUT YOUR WEAVE ROOM COSTS

FILLING BOX RACKS

(patent applied for)

Sturdily built and efficient—holds two full boxes of filling. Each box holds approximately a half a frame of filling, 130 bobbins, with each bobbin laying crossways with the butts all on the same side. The RACKS are placed beside the looms so that the dispensing spout will be just over the battery filling. The dispensing spout is lined with stainless steel as is the filling box. A battery filler can fill up to twice as many batteries than from a tub or basket. There is a side ledge to hold an empty box after the front box is emptied so that the rear full box can be pulled down into position for the dispensing spout.



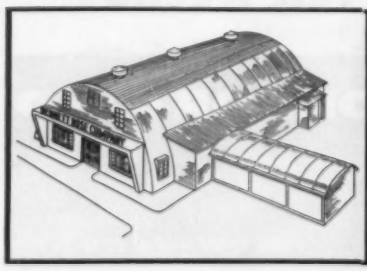
FILLING BOXES: Used for doffing the filling in the Spinning Room from where they are transported to the Weave Room and mounted on Racks (see above) installed at the looms. Boxes may be made of galvanized metal with a stainless steel bottom, or of all stainless steel with perforations for the steaming process also. They can be furnished in various sizes.

(Available with or without dispensing feed-lip.)

FILLING BOX TRANSPORT

This Filling Box Transport is of all steel construction — is used to handle the Filling Boxes from the Spinning Room to the Weave Room — with four shelves holding 20 boxes. May be equipped with any casters. (By using this BENNETT ROSE Battery Filling System a mill can save from 30 to 50% on its battery filling costs and pay for this equipment in from 12 to 20 months.)

Send for further information. Write for our latest catalogue.



BENNETT ROSE COMPANY

P. O. BOX 8

ROEBUCK, S. C.

room temperature of 85° F. is standard.

Labor turnover at this mill is very low. There is a waiting list of local job applicants who are given preference when a vacancy occurs. Employees are trained in the mill and upgraded to weaving, warping, and loomfixing jobs.

DRAWING-IN MACHINE

CONTINUED FROM PAGE 157

drawn warp, takes down the warp, and places the harnesses for the new warp in position.

The No. 2 helper prepares the reeds by polishing them on a reed-polishing machine, prepares drop wires, and operates the heddle-counting machine to put the correct number of heddles on each harness frame. He also places the release rods in the drop wires.

All patterns taken from the looms go to a pattern man. He cleans the harnesses, drop wires, and reeds before they are taken to the drawing-in machine.

When the operator on a given shift has to be absent from work, the No. 1 helper operates the machine. The No. 2 helper moves up to the No. 1 helper's position, and the No. 2 position is filled by a spare hand.

Methods Are Being Improved

During the first few weeks of operation, the foreman cut all pattern chains; but operators were trained and now cut their own metal patterns.

The machine gives very little trouble. When it was first installed, several needles were broken; but this trouble has been eliminated since all old drop wires have been discarded.

The operators maintain the machine. Maintenance consists of cleaning and oiling only. The machine is cleaned and oiled before each weekend shutdown.

Although production on the machine at present is very satisfactory, Roy Moore, foreman of warp preparation, says: "We haven't reached our greatest possible production yet. We expect greater speed from our operators as methods continue to improve."

A comparison of warp waste from hand drawing and machine drawing shows no difference in the amount of waste.

Savings Are Great

Mr. Moore estimates: "The machine will pay for itself in less than

GIVE FABRICS A HAND!

Jacques Wolf Amprozyme and Protozyme for fast, complete de-sizing

The loud applause is for the way both Amprozyme and Protozyme (in liquid or powder form) take the guess-work out of de-sizing—giving fabrics a *good hand* and a uniform ground that's perfect for dyeing without streaks or shading. Potent proteolytic protein degrading enzymes and amylolytic starch digesting enzymes do the converting operation by attacking starches and/or proteins at the very same time.

Jacques Wolf Amprozyme and Protozyme have unlimited uses and application in textile processing and research. Whatever your particular problem, we would welcome the opportunity to submit samples and complete data—without obligation. Contact:

JACQUES WOLF & CO.
Chemicals PASSAIC, N.J.

Plants in: Clifton, N.J., Carlstadt, N.J., Los Angeles, Calif.

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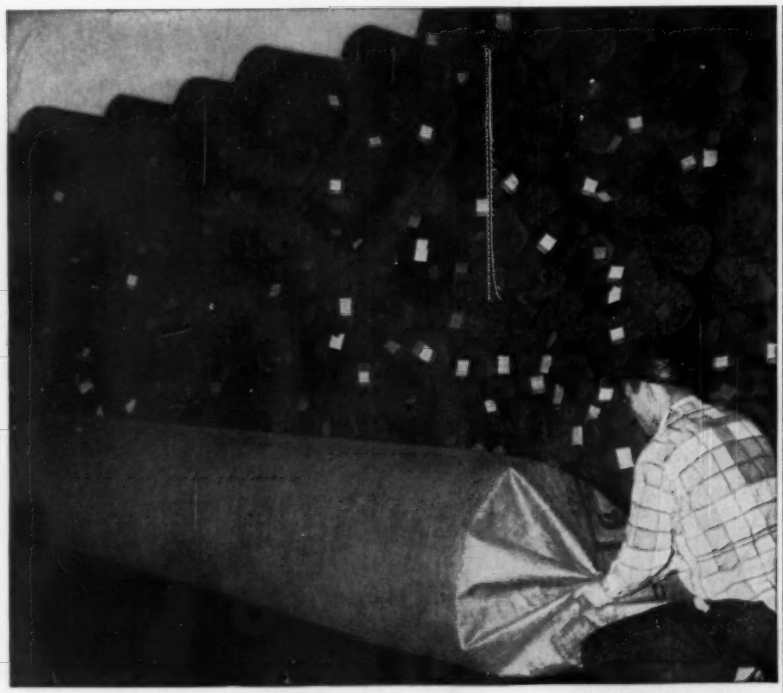
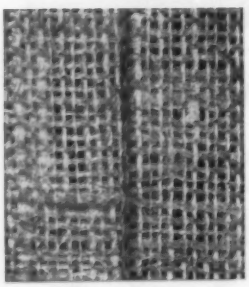


SEAL OUT DIRT . . . SEAL OUT WATER . . .

Give your carpets COMPLETE PROTECTION with Bemis Laminated Carpet Covers



The strong, flat cemented seam is the key to complete protection.

Bemis ROL-RAP Laminated Carpet Covers have cemented *seams*, so there are no needle holes to admit damaging dirt and water. The seams are flat . . . and they are much stronger (by tensile strength test) than conventional seams.

The cost? No more than ordinary covers.

You'll save, too, on labor, time and storage space. And the covers fit so snugly that the roll can't telescope and damage the tuft and pile.

Write or wire for *complete* information on Bemis ROL-RAP Laminated Carpet Covers.

BEMIS PRODUCTS FOR THE CARPET AND TEXTILE INDUSTRY

Laminated Sheets • Laminated Yardage • Laminated Tubing • Tite-Fit Tubing
Paper Rug Covers • Burlap Piece Goods • Wire Ties and Tying Equipment

Bemis

General Offices—St. Louis 2, Missouri • Sales Offices in Principal Cities

three years. This estimate is conservative because it is leaving a large amount for machine supplies and upkeep, and little upkeep has been necessary.

"With hand drawing, there were 15 drawing-in hands and 2 helpers. The average pay for these 17 employees was $11 per day, for a total cost of $187 per day. For a five-day work week, the labor cost was $935.

"Today with the drawing-in machine, there are three operators and two helpers on each of three shifts for a total of nine employees. The average daily pay for the nine employees is $90. For a five-day work week, the labor cost is $450.

"Therefore there's a labor saving of $485 each week. By operating 50 weeks a year, the yearly saving is $24,250. The machine cost $48,000."

POINTERS

CONTINUED FROM PAGE 163

• **It would be detrimental to the questioner,** put him in an embarrassing position, or perhaps make him feel insecure.

• **It would be unfair to other employees,** some of whom might hold better title to getting the data first. For instance, people who have been working on a project have a right to know the project has been accepted before outsiders learn of it.

• **It would run counter to your own interests** by keeping you from doing things you want to get done before the news is released, such as planning a meeting where all your employees will be told simultaneously.

This last category requires special consideration and a good deal of honesty. Many of us tend to hold tightly to bits of news purely as symbols of our own status. Perhaps unconsciously we feel that "knowing this makes me a big wheel because the little wheels don't know it." It is doubtful whether this feeling is a valid reason for concealment.

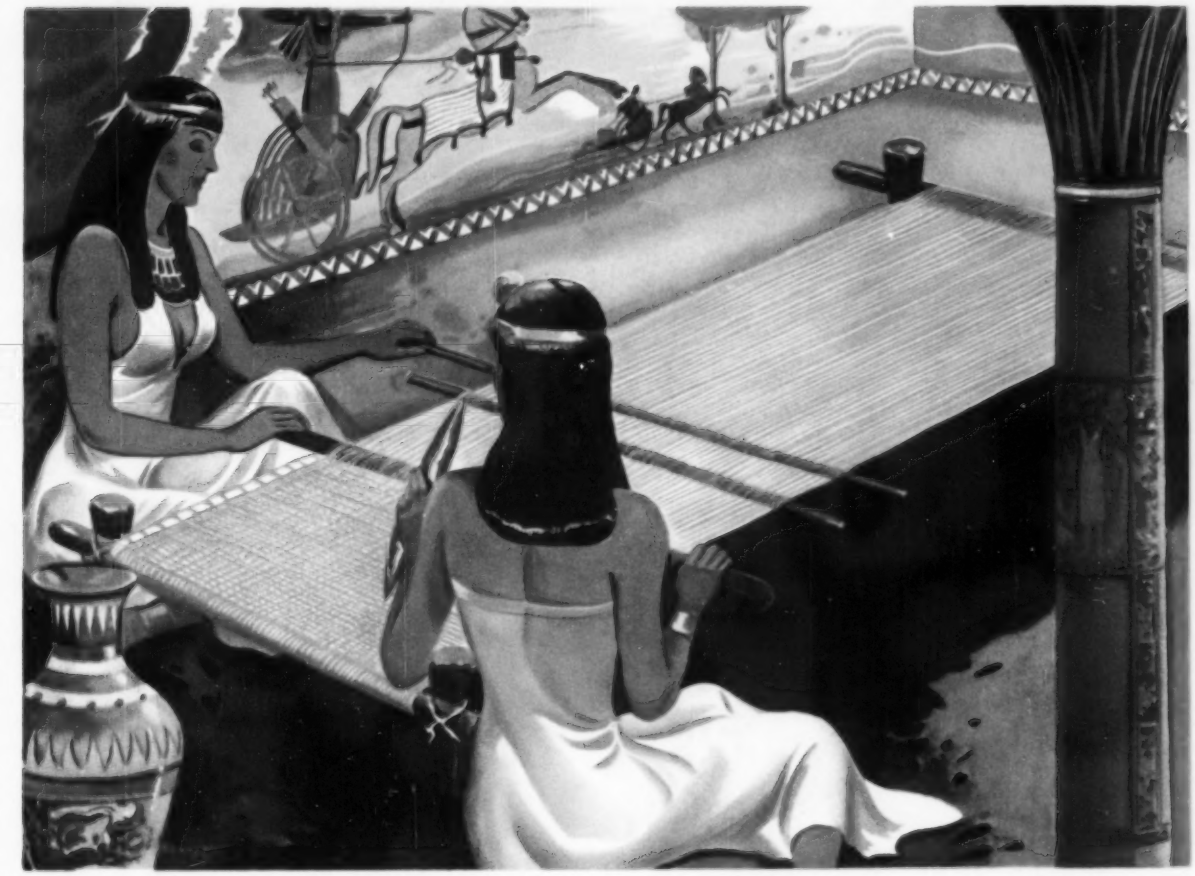
The important point here is that you make sure of your own attitude so that you can proceed with confidence that withholding the information is justified and logical. Given that confidence, here are several proved ways to hold your tongue.

Six Successful Answers

When you believe more will be gained by not replying to an off-beat

Staley's presents:

Weavers Through The Ages



Egypt... First Century

"In upper Egypt, toward Arabia, there grows a shrub from which the stuffs are made which we call Xylina (cotton fabric)"—Pliny: A Roman Naturalist, 23-79 A.D.

Little did Pliny realize, at the time of this observation, that the lowly shrub he called Xylina would grow into one of the key money crops of world economy.

From the wearing of cotton garments by Egyptian priests almost 2000 years ago, cotton today touches our lives wherever we turn. We wear it, sleep on it, walk on it, dress wounds with it, hang it at windows, tie packages with it . . . yes, in countless ways, cotton reigns supreme. Undisputed King of the textile world.

Today, King Cotton counts the name of Staley high on its loyalty list. For three generations, the A. E. Staley Mfg. Co. has worked to bring textile men the finest in research, products and services. For example, Staley's new multimillion dollar research program is dedicated to continued textile progress. New uses for cottons, new synthetics, new textile combinations . . . all demand new methods and products for quality sizing, finishing and printing at reduced cost.

In full realization that profits are the foundation of your future, Staley's stands ready and able to assist you toward developing a brighter textile tomorrow. Let's meet these challenges together.

A. E. Staley Mfg. Co., Decatur, Illinois

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LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

question posed by an employee:

1. Change the subject. As though you didn't hear the query, bring up another matter. If possible, tie it to a special interest or concern of the questioner. Here are samples:

"Oh, Gordon, I forgot to check with you on the new tools. Are they as much better as you hoped they'd be?"

"Say! I've been meaning to ask you, Gordon. Did you and Dick figure out the best way to organize that work table so you can both use it?"

2. Use the politician's "No comment." You can do it with a twinkle in your eye or other evidence of good humor. It conceals the facts but puts no onus on the questioner for asking. Instead, it suggests that not because he is asking but for some entirely different reason, you just don't want to talk about it.

3. Raise the time element. Where something is still up in the air, it may be advisable to say just that, unless the uncertainty, itself, is the fact you don't want to divulge. If you have news that shouldn't be released prematurely, your best response might be along the lines that some announcement will be forthcoming soon.

Secretaries of top management people are often pumped by other employees for inside information. A young lady in a New England mill described how she frequently uses this method:

"I just tell them I'm sure there'll be a notice if and when there is any news."

4. Ask questions yourself. The more rapidly you do it, the better:

"What merger do you mean, Gordon?"

"What are the people saying about a merger?"

"What was it you wanted to know?"

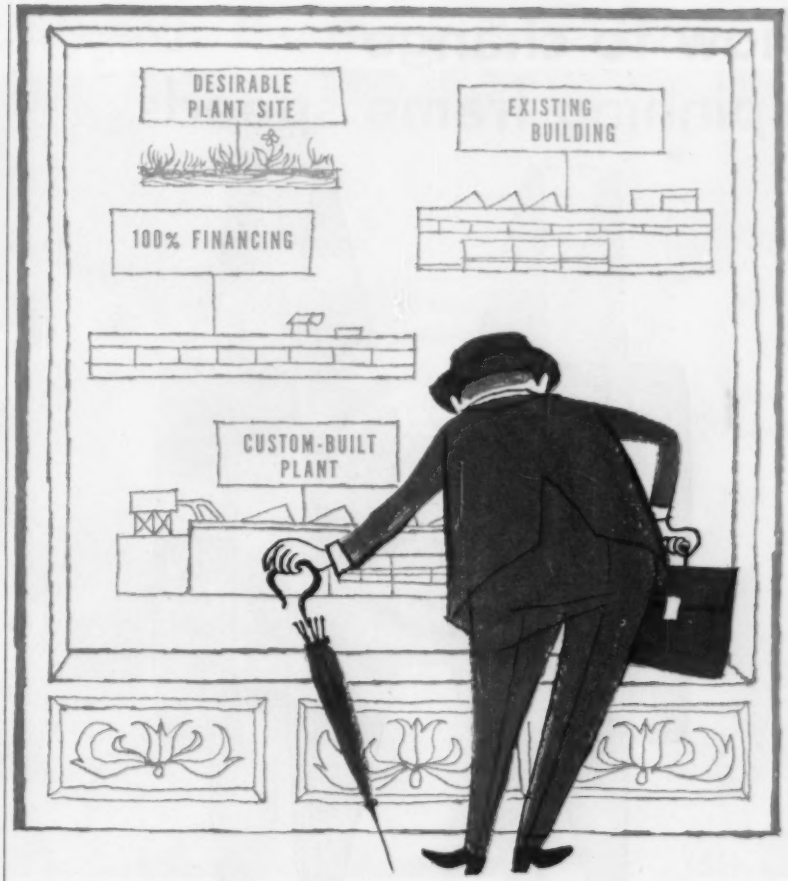
"Do you think a merger would be a good idea?"

"How do you feel a merger would affect your work?"

There are several values in this method:

- It tells him gently and gradually that you're not going to answer his question.
- It sometimes leads to his changing the subject because he's working so hard to answer your questions.
- If necessary, it gives you time to hit on a tactful way of telling him he's out of his depth.

5. Give a qualified "No." For in-



WINDOW SHOPPING
for plant space?

Here in WESTern PENNsylvania, we can fill your needs. Many of our communities offer 100% FINANCING on new or existing plants, with 2% minimum interest on one-half your plant cost for 25 years (max. terms). You'll find it hard to beat this offer, particularly when you add these *plus values:* excellent transportation from this "Midway Location" to all major markets, and a large reserve of home-town female labor.

Get the WESTern PENNsylvania Story

Dept. TW-2

Area Development Department
West Penn Power Company
Cabin Hill, Greensburg, Pa.

CONFIDENTIAL REQUEST: I'd like to shop WESTern PENNsylvania for plant space. Please have your representative call.

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Company_____

Address_____

City and State_____

WEST PENN POWER

an operating unit of the WEST PENN ELECTRIC SYSTEM

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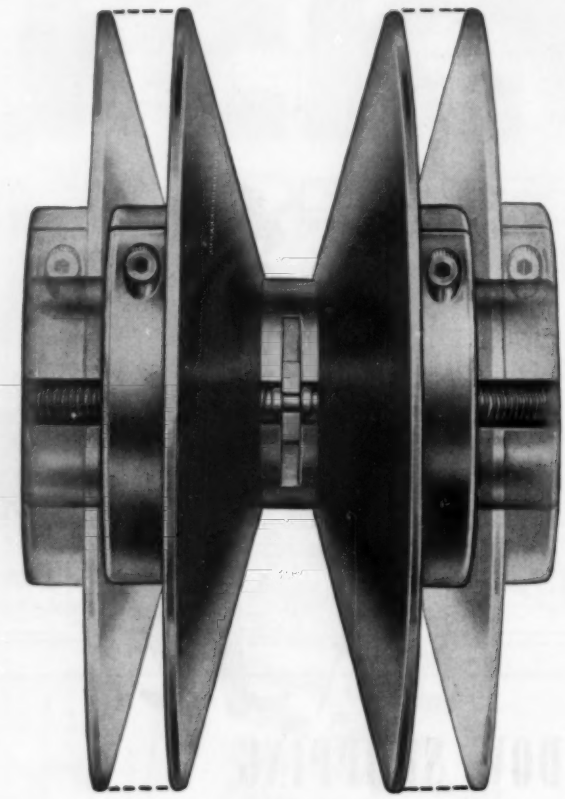
how to change spinning frame speeds



the simple, low cost way

Wood's offers the simplest variable speed sheave on the market today! So easy to change speeds. Simply turn the single adjusting screw from either side to change pitch diameter. With the speed chart furnished you can adjust the sheave to the desired speed without trial and error. Simplified design provides positive clamping of the two adjustable flanges . . . eliminates fretting corrosion. Single wide range belt gives maximum HP efficiency. Does away with the problem of maintaining matched belts and matched grooves. (Maintenance costs go down because no periodic lubrication is necessary for the drive.)

If you are interested in lowering costs, ask for complete information on the most talked about drive in the Spin-Weave Industry, write for Bulletin 1100 and the name of your nearest Wood's distributor. No obligation.

Wood's

T. B. WOOD'S SONS CO.

CHAMBERSBURG, PA.

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stance, you can say, "Nothing new worth bothering about." This method is, however, the least safe one suggested here. It may be perfectly true that you know no new facts you are free to pass along to your inquirer. You are being honest enough. But if an official announcement does come out very soon, you may look a bit foolish.

6. **Tell him he's off base.** Some employees do have to be reminded that they are not members of management, but it doesn't have to be done brutally. Here, for instance, are softer ways to say it:

"Gordon, you and I ought to let the brass worry about that. We have plenty to think about right here in our own department."

"You know what? You sound like a fellow who doesn't have enough headaches of his own and wants to take on someone else's headaches."

The surest safeguard, naturally, is a mature relationship with your people. If you think of employees as stupid underlings, you're not likely to be able to conceal facts gracefully, whatever you do. If, on the other hand, you respect employees' rights as interested, intelligent human beings, your instincts will help to carry you through.

LOOM PARTS

CONTINUED FROM PAGE 153

adjust than the others. So he may carefully adjust the straps he prefers and put the other straps on crooked. Or he may shorten the straps and lengthen the stroke of the picker stick so that the straps he doesn't want will wear out quicker.

If testing is made a routine part of weave-room operation, it will not consume too much time or upset schedules. It will prove of immense value in the selection and use of many loom parts, accessories, and materials. The results of comprehensive tests can be used to cut costs, increase efficiency, and reduce seconds.

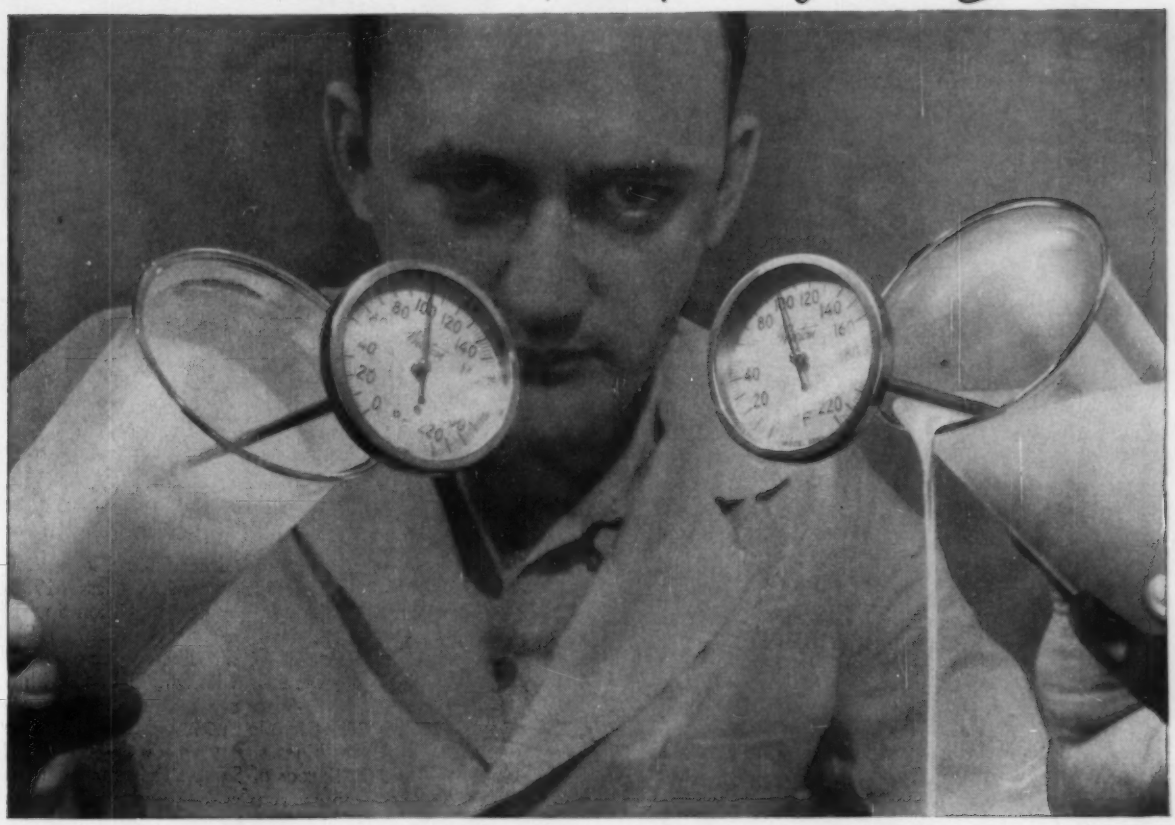
EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 178

Lint Remover

Air washers do not accumulate lint, slime, or rust when the water is treated with a product made by In-

C.P. Starches...Try 'em for Size



Here is a comparison of the viscosity of conventional starch (left) and Ten-O-Film.
Note that at 100°F. Ten-O-Film pours from beaker, while conventional starch has congealed.

For slashing synthetics use

TEN-O-FILM®

starches

On blends of synthetic and other fibers, you'll get greatly improved operation with Ten-O-Film Starches.

Compatible with adjuncts generally used, Ten-O-Film Starches cook completely in 30 minutes, permit warp sizing and finishing at lower temperatures. Hot paste viscosities remain stable even under conditions of prolonged heating and circulation. Fabrics are more readily desized.

Using Ten-O-Film, you save on dyestuffs, too, because lower sizing temperatures greatly reduce "bleeding", permit use of less expensive dyes. Also, the high-clarity size film produced with Ten-O-Film does not mask either dark or pastel shades.

For technical help in utilizing Ten-O-Film Starches, and engineering assistance, write to:

CORN PRODUCTS SALES COMPANY
17 Battery Place, New York 4, New York

Corn Products makes these famous products for the Textile Industry:

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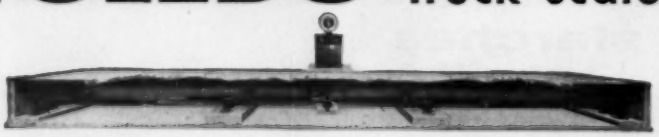
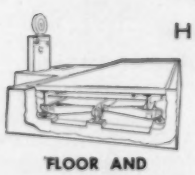
full figure PRINTED WEIGHTS to 99,990 lbs. with TOLEDO truck scales!



Toledo Printweigh is now available on all Toledo Hi-Weigh Truck Scales . . . provides full figure printing for each 10 pounds from zero up to 50 tons! Records weights on tickets, strips or sheets. Avoids human errors. Big range of sizes to 60 feet. Two section, four section and axle load models. Ask your local Toledo office about them, or write for bulletin 2417. Toledo Scale Company, Toledo 13, Ohio.

TOLEDO®

Headquarters for Scales



FLOOR AND TRUCK SCALES

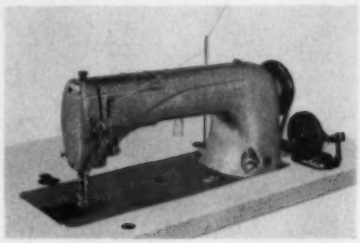
WEIGHT PRINTING

OVER-UNDER SCALES

BENCH AND PORTABLE SCALES

dustrial Products Co., 185 Harris St., N. E., Atlanta, Ga. Added to the sump of an air-washing system, the chemical keeps lint from accumulating on the baffle plates and also kills algae and inhibits rust.

Circle T-22 on Reader-Service Card



Lock-Stitch Machine

A high-speed needle-feed lock-stitch machine, designated as Class 61900, has been announced by Union Special Machine Co., 400 N. Franklin St., Chicago 10, Ill. The machine, which incorporates a horizontal hook with a needle-feed motion, reaches speeds unattainable with vertical-hook-type machines.

Speeds of 5,000 stitches per minute can be run; and the advantages of a needle feed to insure flat nonpuckering seams are gained without sacrificing speed.

All three styles are made to fit standard lock-stitch-machine table boards. The stitch range can be adjusted from 7 to 18 stitches per inch. All machines have sealed-in lubrication to guard against contamination by lint. There are no open oil sumps that require frequent cleaning.

Circle T-23 on Reader-Service Card

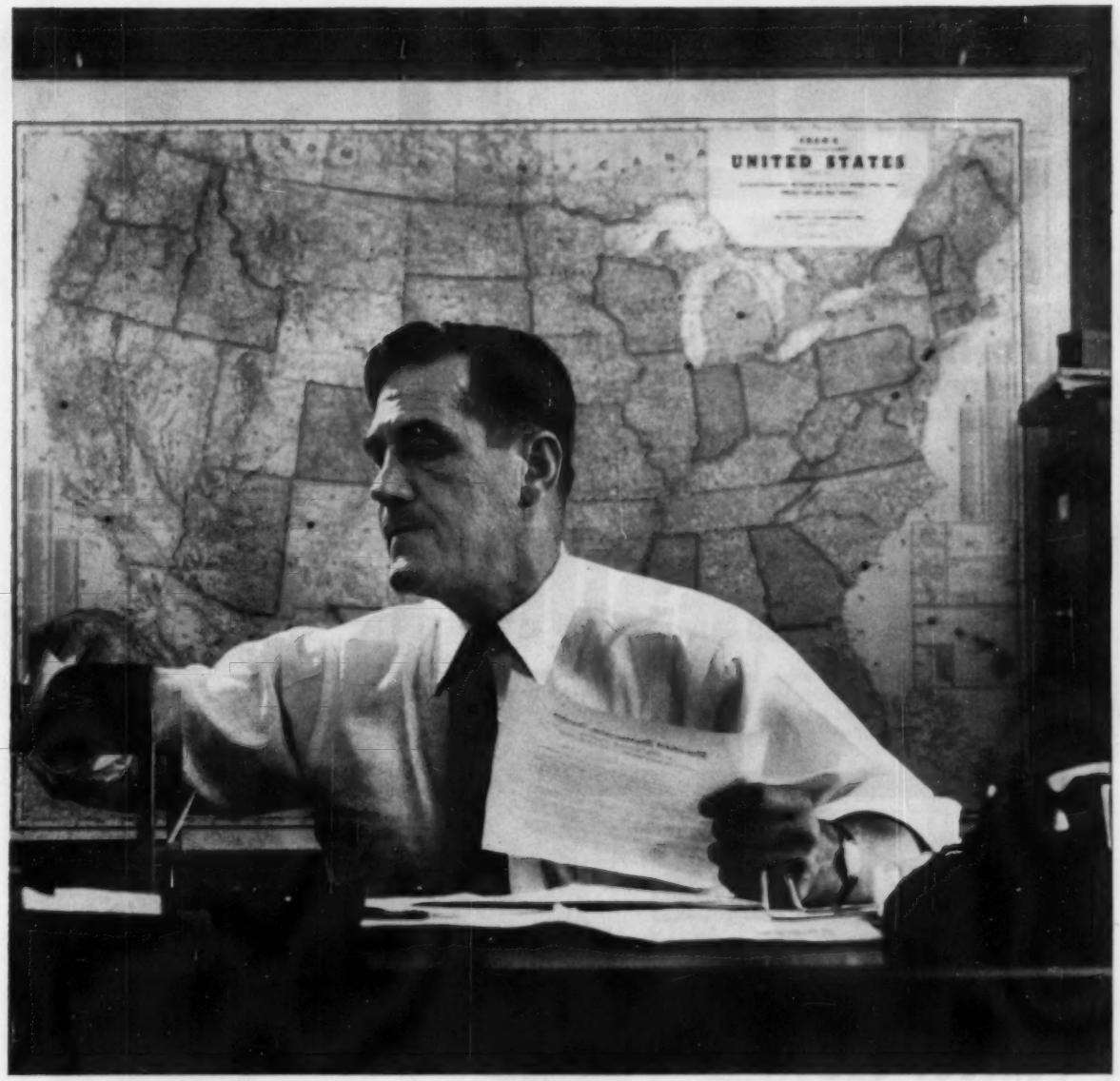
Motor for Controls

An electric motor, Actionator unit, for the operation of rotary, slip-stem, and butterfly valves, dampers, and other final elements in automatic control systems has been announced by Minneapolis-Honeywell Regulator Co., Industrial Div., Wayne and Windrim Aves., Philadelphia, Pa.

The unit is a reversing capacitor-type motor available in four basic models. Features are proportioning control, choice of timings, and versatile switching.

Circle T-24 on Reader-Service Card

CONTINUED ON PAGE 244



COPYRIGHTED MAP COURTESY OF THE GEORGE F. CRAM CO., INC.

This man has 48 states on his mind

(His job is moving Dow Caustic Soda into your backyard)

He's learned to think in terms of the best type of transportation, time in transit and customer convenience in receiving. He's an important link in the long chain of people who produce, sell and deliver Dow Caustic Soda.

Dow caustic in many forms—solid, flake, ground and solution—moves into the backyards of American industry from several strategically located shipping points.

It is shipped direct from three Dow producing plants located at Freeport, Texas; Midland, Michigan; and Pittsburg, California. A new plant at Plaquemine, Louisiana, will be in production in 1958.

It is also distributed through terminals at Bayonne, New Jersey; Carteret, New Jersey; Port Newark, New Jersey; Charleston, South Carolina; Chicago, Illinois; Baltimore, Maryland; and Los Angeles, California. A new terminal at Grants, New Mexico, will help to provide even better service to Dow Caustic Soda customers.

For more information about the advantages of buying caustic from Dow, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Department **AL 604E-1.**

YOU CAN DEPEND ON DOW

For more data, write this page number on Reader-Service card. →

STEEL

Every kind in stock

Immediate shipment

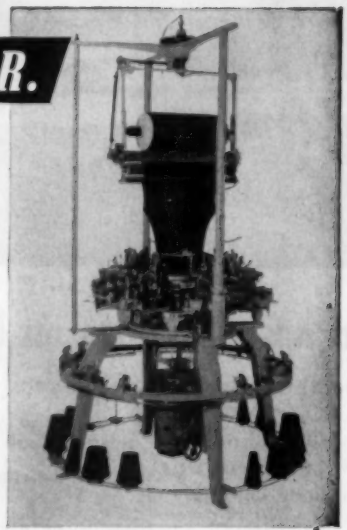
Principal Products: Bars, Structurals, Plates, Sheets, Tubing . . . Carbon, Alloy and Stainless Steels, Machinery and Tools, etc.

RYERSON

Joseph T. Ryerson & Son, Inc. Plants at: New York • Boston • Wallingford, Conn. • Philadelphia • Charlotte, N. C. • Cincinnati • Cleveland • Detroit Pittsburgh • Buffalo • Chicago • Milwaukee • St. Louis • Los Angeles San Francisco • Spokane • Seattle

ALL NEW...

TOMPKINS S-1 JR.



MAKES THE MOST PERFECT CLOTH POSSIBLE

HERE'S A TYPICAL EXAMPLE...

Model S-1 Junior making fleece with 400-lbs. of Carter 26's and 8's —five feeds, 18" cylinder, running time 68-turns per minute . . .

- **MINIMUM OF IMPERFECTIONS AND BROKEN NEEDLES**

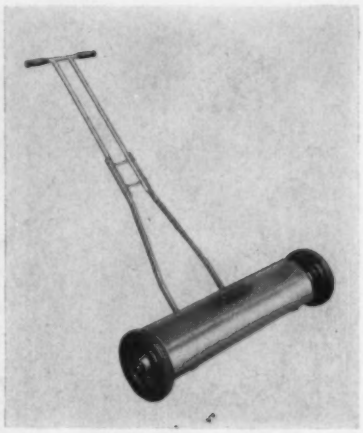
You can produce any class of cloth in the wide range of circular spring needle knitting—in greater quantity, with less waste and less needle breakage—on the New S-1 Junior! It gives you the proven Tompkins system in fully modern form . . . with triple stop motions, furnishing wheels, new gearless drive, automatic oiler and air cleaner! Get the full story now . . . be among the first to profit!

TOMPKINS BROS. CO.

623 ONEIDA ST. • SYRACUSE 4, N. Y.

Makers of Circular Spring and Latch Needle Knitting Machinery...Since 1846

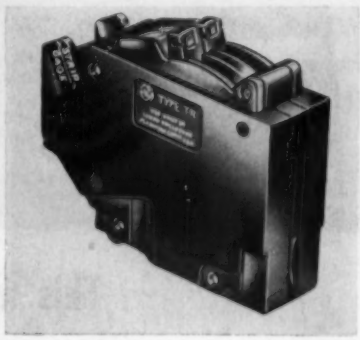
CONTINUED FROM PAGE 242



Magnetic Sweeper

A redesigned model of its permanent magnetic hand sweeper has been introduced by Homer Mfg. Co., Inc., Lima, Ohio. Available in widths of 12, 18, 24, and 36 ins., the sweeper will pick up nails, shavings, travelers, and other types of ferrous scrap and metal objects.

Circle T-25 on Reader-Service Card



Twin Circuit Breaker

A plug-in twin circuit breaker and load-center line that makes it possible to install twice the number of circuits normally possible in an average load center has been announced by Circuit Protective Devices Dept., General Electric Co., Plainville, Conn.

The compact breaker actually combines two breakers in a single 1-in. case. Designated Type TR, the unit is available in ratings of 15 and 20 amps. and is suitable for protecting a.c. lighting and appliance branch circuits.

Circle T-26 on Reader-Service Card

CONTINUED ON PAGE 246

BLENDING

Synthetics

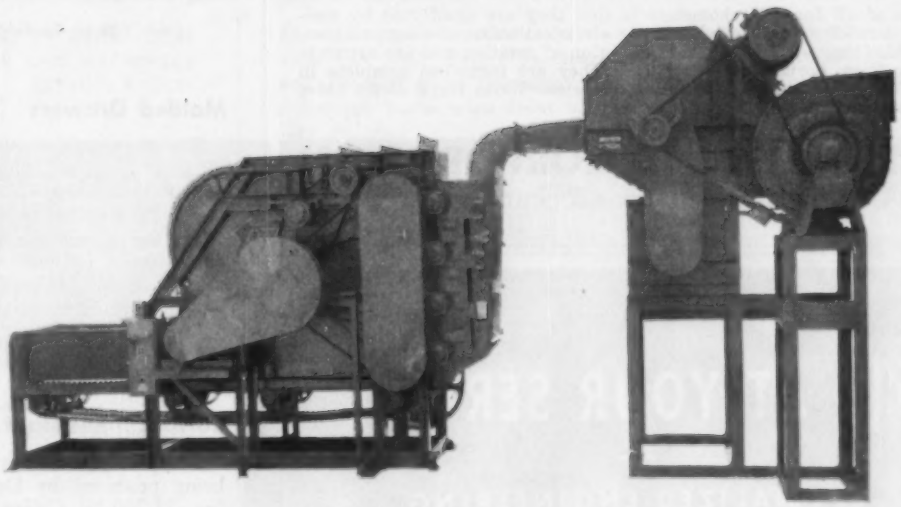
was no

SNAP!

Until the development

of—

THE CEN-TENNIAL PERFECT BLENDER



After years of painstaking research and development by CEN-TENNIAL, and months of testing and proving by some of the *largest* manufacturers of synthetic fabrics,

THE CEN-TENNIAL PERFECT BLENDER

is now available to the industry on a production basis.

Whatever method is used to proportion the basic fibers—weight, volume or otherwise—groups of fibers in a mix must be reduced to single fiber elements before perfect blending can be accomplished.

THE CEN-TENNIAL PERFECT BLENDER

insures harmless separation of the various fibers; assures complete fiber intimacy, and makes perfect blending a certainty.

CEN-TENNIAL COTTON GIN COMPANY

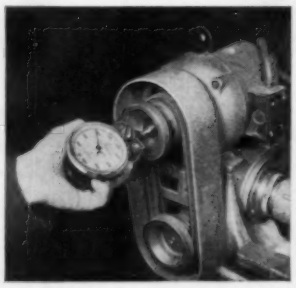
COLUMBUS, GEORGIA, U.S.A.

For more data, write this page number on Reader-Service card. →

Measure RPM's, FPM's and YPM's the precise way with a Jones Portable Hand Tachometer

Continuous indication of speed with instant response

An outstanding feature of this hand tachometer is that it accurately indicates the slightest fluctuation in speed. It operates on the centrifugal, mechanical principle. These Jones Tachometers are in use for checking the speeds of electric motors, plant machinery and equipment, generators, engines, pumps, conveyors and other variable speed apparatus.



Many different models and speed ranges

Jones Tachometers and Speed Indicators are available in many different models and cover a wide range of speeds. They are selected according to the application, which may be marine engines, diesel engines, railway locomotives, textile machinery, earth moving equipment, etc.

Unaffected by temperature, humidity, electricity

A feature of all Jones Tachometers is that they are unaffected by temperature, humidity, proximity to large electrical units or magnetic conditions. Also they operate in either direction of rotation and are accurate in any position, horizontal or vertical. They are furnished complete in carrying case with rubber tips and accessories. Write for Bulletin 146-4 or a demonstration to:

JONES MOTROLA CORPORATION

STAMFORD, CONNECTICUT

AT YOUR SERVICE

*

SPECIALIZED ENGINEERING
SPECIALIZED EXPERIENCE
SPECIALIZED MACHINERY
FOR
TWISTING • FORMING
STRANDING • BUNCHING
COTTON • JUTE • MANILA • SISAL
NYLON • DACRON • ORLON • SARAN
PAPER • POLYETHYLENE • GLASS

TEXTILE • WIRE • CORDAGE and OTHER INDUSTRIES

HASKELL-DAWES

MACHINE CO., INC.
2231 E. Ontario Street
Philadelphia 34, Pa.

CONTINUED FROM PAGE 244

Entrance Panel

A fusible entrance panel to supply adequate circuits and wiring protection for 120-v. lighting and 240-v. appliance circuits is announced by General Electric Co., Trumbull Components Dept., Plainville, Conn.

Circle T-27 on Reader-Service Card

Better Oils

Eight oils for hydraulic and circulating equipment have been announced by Socony Mobil Oil Co., Inc., 26 Broadway, New York, N. Y. The oils provide protection against rust, oxidation, and wear.

Circle T-28 on Reader-Service Card

Molded Drawers

Drawers molded from Bakelite phenolic resins are being produced by Boonton Molding Co., Boonton 1, N. J. Well suited to laboratory purposes, the drawers are heat, chemical, and moisture resistant. Standard sizes are: Model B, 17⅛x14¾x4¾ ins.; Model G, 16¾x14¼x4¾ ins.

Circle T-29 on Reader-Service Card

Corrosion-Resistant Liners

Leakproof liners for steel drums are being produced by Denver Plastics, Inc., 15,200 W. Colfax Ave., Golden, Colo. Made of extruded polyethylene, the liners are available for 30- and 55-gal. steel drums.

Circle T-30 on Reader-Service Card

Plastic Tanks

A polyester plastic reinforced with glass is used by Harveg Industries, Inc., 900 Greenbank Rd., Wilmington, Del., to construct corrosion-resistant tanks. Structural strength is aided by built-in ribs of the same material.

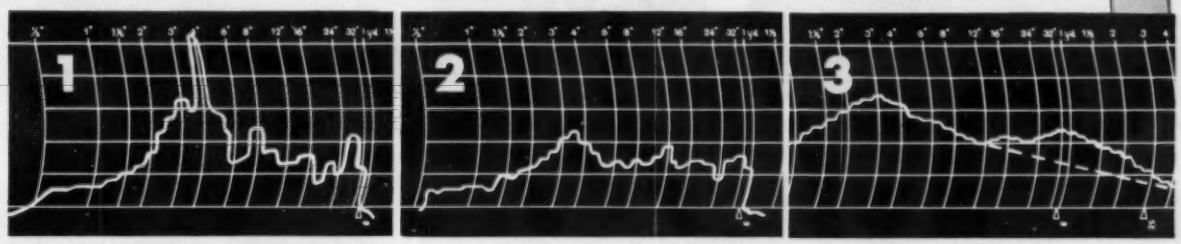
Circle T-31 on Reader-Service Card

Rotary Joints

Balanced pressure between stationary and revolving parts is employed to produce a leakless joint made by

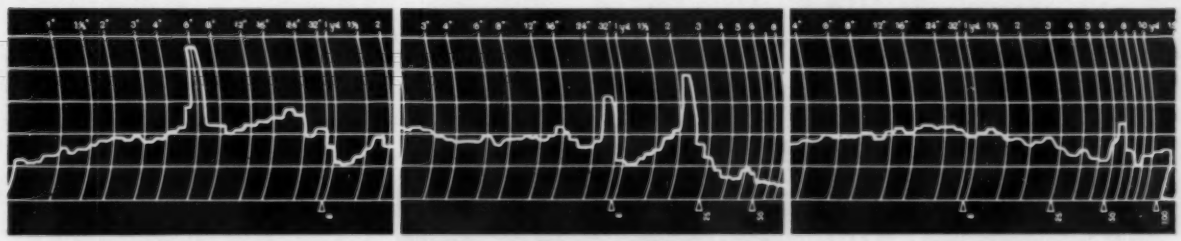
HOW

THE SPECTROGRAPH IMPROVES YARNS AND FABRICS EACH DAY



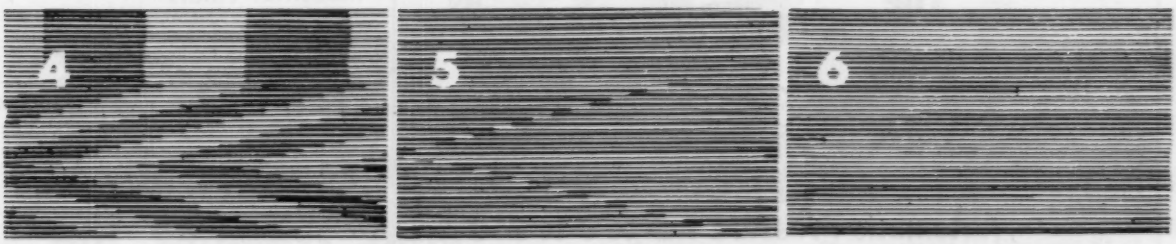
SHOWS UP MECHANICAL TROUBLES AND MACHINERY SETTING FAULTS

Even the smallest periodic variations show on the Uster Spectrogram and "peaks" show intensity. See 1 describing badly worn front bearing and 2 after mechanical correction. 3 points out drafting wave due to faulty machine setting in drafting zone.



SHORT, MEDIUM AND LONG TERM VARIATIONS

Simultaneously with the operation of the Evenness Tester, the Spectrograph automatically analyzes accumulative variations on 30 channels and stores the result. In 4 to 6 minutes the periodic variations can be registered automatically on the Spectrogram for the visual result!



FORESEES THE FINISHED FABRIC

All mill personnel can see periodic variations in stages prior to the test. Fabric appearance is easily predicted in 4 short term variations, 5 medium term variations, and 6 long term variations by cloth-width/wave-length ratio.

SALES OFFICES:

U. S. Sales Offices: Atlanta, Georgia; Needham Heights, Massachusetts

Canadian Sales Offices: Hugh Williams & Company, 27 Wellington St., East Toronto 1, Ontario

FOR FURTHER INFORMATION PLEASE CONTACT

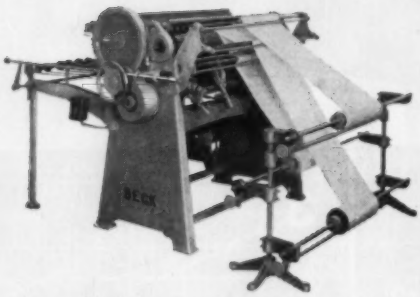
USTER

USTER CORPORATION, CHARLOTTE, N. C.

For more data, write this page number on Reader-Service card. →

one operator

cuts 480 cloths per minute with



BECK

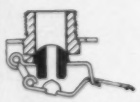
AUTOMATIC ROLL SHEET CUTTER

That's *speed* in any production man's language! There's no wasted time, motion or material with this versatile machine. It cuts practically any material from rolls to accurately sized sheets, piles them neatly and permits quick size changeover. Expensive? Definitely not. Let's prove this to you. A short letter will bring you details. Write.

CHARLES BECK MACHINE CORPORATION
50 CHURCH ROAD BECK KING OF PRUSSIA, PA.

Why the UNI/RAP is Universal

Pilot valve guarantees tight, positive seal



Weight of condensate opens pilot valve. Balanced pressure instantly opens main valve.

Condensate discharges quickly through large orifice.

The Dual-Valve

Automatic Pressure Range 0 to 250 lbs.

- Tremendous Capacity • Fast Warmup • Less Wire Drawing
- Reduces water hammer • Reduces trap and parts inventory
- Completely universal without changes or adjustments
- Pipe Sizes ½" through 2". Write for Bulletin 800W

"WHERE *Good Connections* COUNT" ®

Home Office and Factory:
PERFECTING SERVICE COMPANY, 332 Atando Ave., Charlotte, N.C.
Baltimore — Buffalo — Camden, N. J. — Chicago — Cleveland
Los Angeles — New York — Providence — Montreal — Toronto

Sealol Corp., Warwick Industrial Park, Providence 5, R. I. Steam, water, or oily liquids can be handled by the joints.

Circle T-32 on Reader-Service Card

Tank Liner

A cement-base material for lining steel tanks has been developed by Pocono Fabricators, Inc., E. Stroudsburg, Pa. Called C-17 Pte-Krete, the product can be applied on the site and is claimed to double the life of steel hot-water tanks.

Circle T-33 on Reader-Service Card

Laboratory Stirrer

A variable-speed stirrer for laboratories has been announced by Gerald K. Heller Co., 1 N. Carey St., Baltimore 23, Md. The stirrer operates on 110-v. a.c. and turns at 100 to 1,200 rpm. through a tapped autotransformer.

Circle T-34 on Reader-Service Card

Tank-Repair Resin

An epoxy resin called Sonite combined with layers of glass cloth will make permanent repairs to leaky tanks, according to the maker, Smooth-On Mfg. Co., Jersey City 4, N. J. The glass-resin combination has great chemical stability, and repaired areas can withstand pressures up to 1,000 psi.

Circle T-35 on Reader-Service Card

Industrial Filters

Closed filters that utilized trapped air to speed up backwashing have been announced by R. P. Adams Co., 425 Park Drive, Buffalo 17, N. Y. The filters are available with several different filtering elements and can be used for batch or continuous processes.

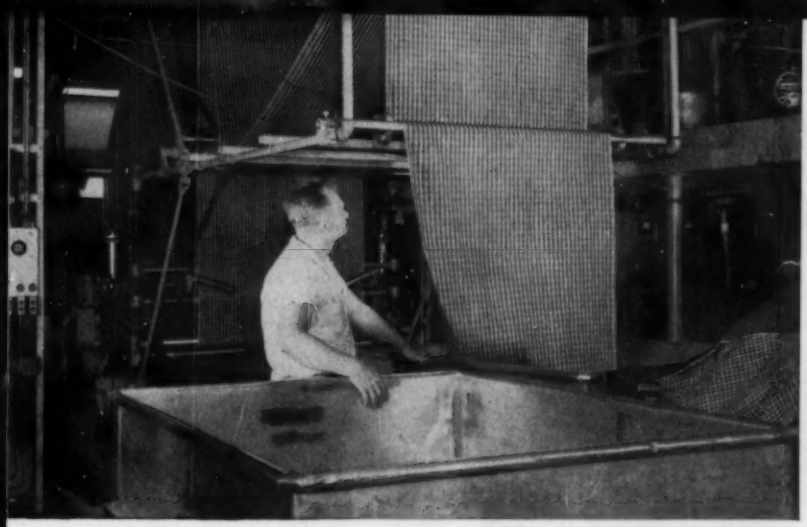
Circle T-36 on Reader-Service Card

Inert Pipe-Joint Compound

Pipes carrying corrosive chemicals are sealed effectively at the joints by a Teflon-based product made by Crane Packing Co., Dept. TWN 6400, Oakton St., Morton Grove, Ill. The compound does not harden and has a low coefficient of friction; so joints may be easily tightened.

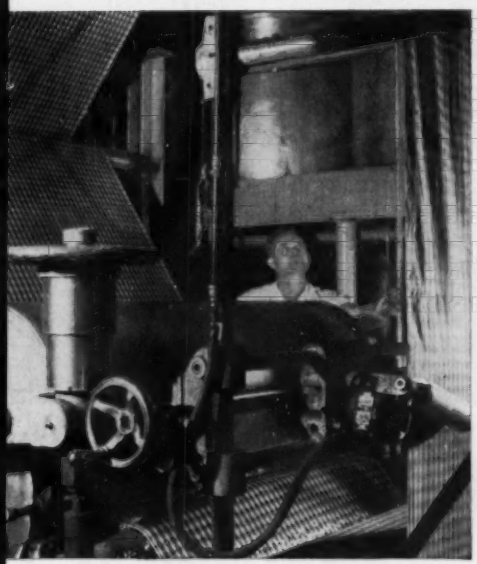
Circle T-37 on Reader-Service Card

CONTINUED ON PAGE 250

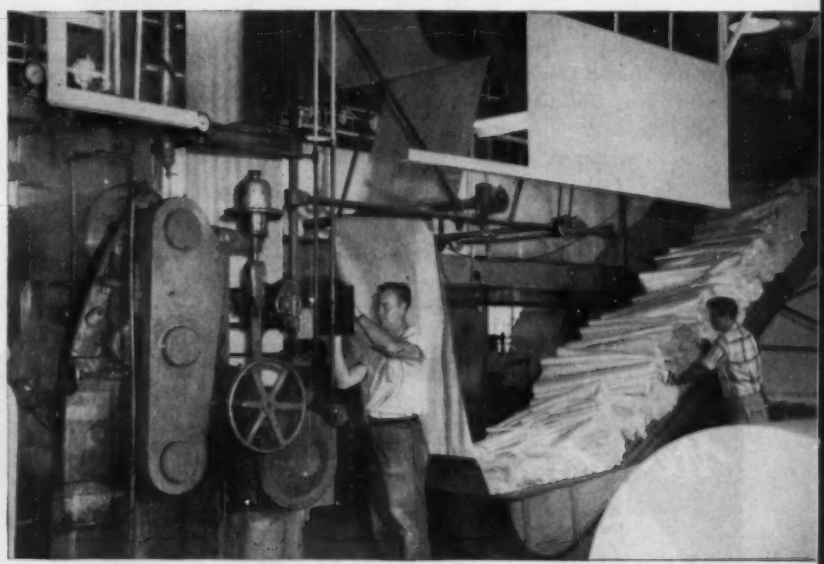


Fabric passes over Stainless Steel rollers in this photo.

Dye vats, bobbins and fittings are all Stainless Steel.



Two-roll padder. Stainless dye tanks are in background.



Here, you can see the Stainless Steel slide and roller.

Nothing touches fabric but Stainless Steel

IN THIS LARGE GINGHAM PLANT

The plant shown here operates 1200 looms; and it is one of the largest mills in the South. As part of a constant modernization program, Stainless Steel equipment is specified for virtually all new installations. The reasons are simple: easier cleaning, no splinters, no contamination, more brilliant colors and *much* longer service life.

The pictures show several examples of Stainless Steel in use at this progressive mill. Notice the important fact that nothing except Stainless Steel is allowed to touch the fabric.

If you want maximum performance from your equipment, design with Stainless Steel *from the beginning*. For service-tested quality, specify USS Stainless Steel.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

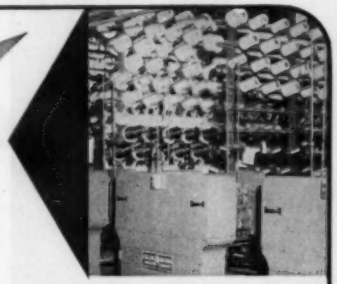
USS STAINLESS STEEL

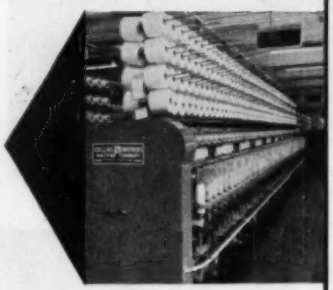
SHEETS • STRIP • PLATES • BARS • BILLETS • PIPE • TUBES • WIRE • SPECIAL SECTIONS

7-56

UNITED STATES STEEL

There is a Collins Twister for every Ply Yarn Construction





Collins produces the most complete line of twisters on the market . . . Novelty, Ply, Big Ring, Beam, Cabling, Wet, Trap, Rayon, Paper, Glass, Single or Dual Drive, and Special Twister Take-ups.

Since 1866 Collins Twisters have been the finest in the field. Today's line offers you many valuable exclusive features. Let us give you full information on the machines you need.

COLLINS BROTHERS MACHINE COMPANY

647 Roosevelt Ave., Pawtucket, R. I. • Charlotte • Chicago
Hugh Williams & Co., 27 Wellington St. E., Toronto 1, Canada

New New

The Chatham Stop Counter

- **Stops Weavers' Pay Confusion**
- **Improves Cloth Quality**
- **Saves Money**

Weavers' Pay This device accurately counts warp and filling breaks—separately. Thus, for the first time in weaving history, you can determine an equitable basis for a day's pay.

Quality The Chatham Stop Counter "puts the finger" on causes of poor running work so that these can be corrected. Also reduces warp-out and draw-back defects.

Economy Eliminates the costly manual counting of loom stops...and also the false stops from slack filaments and terry warps. Permits fast and accurate changes in loom assignments to increase over-all efficiency. Records show that Chatham Loom Stop Counters pay for themselves in 4 to 5 months.

Write Dept. W for full information today.

Strandberg **ENGINEERING LABORATORIES, INC.**
416 W. MARKET ST., GREENSBORO, N. C.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 248

Solenoid Valve

The Magnatrol Valve Corp., 72 Fifth Ave., Hawthorne, N. J., announces solenoid valves that feature a removable operating assembly that facilitates inspection, cleaning, or replacement of operating parts.

Circle T-38 on Reader-Service Card

Thermocouple Gland

A multiple-wire thermocouple gland that provides easy entrance into pressure vessels of 1, 2, 4, 6, or 8 wires is available from Conax Corp., 7811 Sheridan Drive, Buffalo 21, N. Y.

Circle T-39 on Reader-Service Card

Separation Magnets

Stearns Magnetic, Inc., Milwaukee, Wis., announces a line of suspended separation magnets for use with conveyor systems to dig out imbedded tramp iron in the flow of materials.

Circle T-40 on Reader-Service Card

Temperature Controller

A thermiston-actuated temperature controller that can be plugged in for use with single- or multiple-point temperature control systems is announced by Fenwal, Inc., Ashland, Mass.

Circle T-41 on Reader-Service Card

Gauge Glass Cleaner

A cleaning rod for cleaning the inside of liquid-level-gauge glasses is available from Jerguson Gauge & Valve Co., Somerville, Mass.

Circle T-42 on Reader-Service Card

Control Valve

C. B. Hunt & Son, Inc., Salem, Ohio, makes a line of B-type valves that are available in single- and double-solenoid, lever, and single- and double-piloted designs.

Circle T-43 on Reader-Service Card

Electronic Controls

The development of electronic devices that utilize minute electrical charges in the air to control the tem-

SPEED: 12,500 rpm PROBLEMS: none

Quill winding spuns with KIDDE compensators

For 2 years, these winders have operated at 12,500 rpm with the help of new Kidde double disc compensators, specifically designed for use on spuns and natural fiber yarns. At top efficiency, they've turned out the kind of quills that give top loom performance. There are 5 reasons why these Kidde Compensators give such outstanding performance.

1. You get maximum density control with Kidde Compensators, cutting down on quill changes and assuring uniform quill size as well.
2. There is never any build-up of lint because Kidde Compensators are entirely self-cleaning.
3. Tension is automatically maintained at designed strength of yarn.
4. Kidde Compensators assure absolutely uniform quill diameters.
5. Positive tension control is maintained without any abrasion.

Can you afford to do without these "constant watchmen" over your winding process?

For full information, write to:

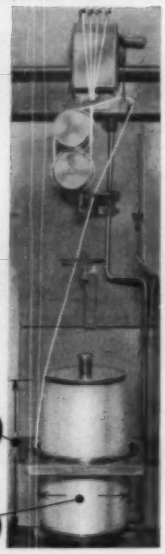
TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

THE NEW
5 POUND
FLETCHER
MASTER
DUPLEX
DOUBLER-
TWISTER
THREE
STYLE
PACKAGES



THE FLETCHER WORKS INC.
2nd & GLENWOOD AVE.
PHILADELPHIA 40, PA.

perature and level in the manufacturing of many products is announced by Fielden Instrument Div., Robertshaw-Fulton Controls Co., 2920 N. Fourth St., Philadelphia 33, Pa.

Circle T-44 on Reader-Service Card

Pressure Transmitter

A low-cost, pneumatic pressure transmitter that operates on the force-balance system is available from Conoflow Corp., 2100 Arch St., Philadelphia 3, Pa.

Circle T-45 on Reader-Service Card

Negative Paper

A negative paper to be used in the Transcopy and similar transfer process machines to produce black and white copies under fluorescent lights is announced by Remington Rand, 315 Fourth Ave., New York 10, N. Y.

Circle T-46 on Reader-Service Card

Storage Cabinets

Its Little Gem storage cabinets are available with choice of two types of instantly adjustable compartment drawers as announced by Equipto, Aurora, Ill.

Circle T-47 on Reader-Service Card

Hoist Brake

An eddy-current brake that provides positive accurate control from no load to full capacity in hoisting or lowering is available from Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia, Pa.

Circle T-48 on Reader-Service Card

Vibration Monitor

The Beta Corp., Forest Ave. at Ridge Rd., Richmond 26, Va., announces an oiltight and dusttight detector that monitors vibration and shuts down rotating equipment such as fans, compressors, blowers, etc. before damage occurs.

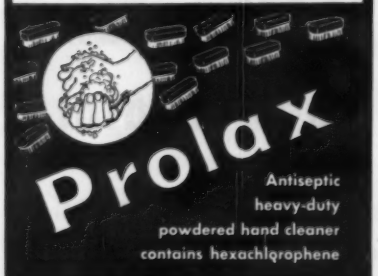
Circle T-49 on Reader-Service Card

Pressure Switch

Minneapolis-Honeywell Regulator Co., Wayne & Windrim Aves., Philadelphia 44, Pa., announces an indus-

CONTINUED ON PAGE 260

Soap and brush action without any brush



Borax scrubber in Prolax powder acts like millions of fine tiny brushes. Makes stubborn grime vanish quickly.

Its hexachlorophene, through regular use, builds an invisible film on the skin that reduces by as much as 95% the resident bacterial population.

Correct for both shop and office; popular with both men and women.

Protect your valued employees from dermatitis with this heavy duty cleanser that is so kind to the skin.

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WESTPORT, CONNECTICUT

Out Goes
LINT · FLY
TRASH
from your
SPINNING FRAMES
and ROVING FRAMES
Quickly • Economically

by using
M·B AMOSKEAG PNEUMATIC ROLL PICKER

MODEL A-VT-A

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

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Direct Mail is a necessary supplement to a well rounded Business Paper advertising program.

Most progressive companies allocate a portion of their ad budgets to this second medium at the same time as they concentrate on the best business publications.

600,000 of the top buying influences in the fields covered by the McGraw-Hill publications make up our 150 mailing lists. Pick YOUR prospects out of our Industrial Direct Mail catalogue.

Write for your free copy.
It contains complete information.

Cocker Presents . . . the New Multiple Beam Tricot Warper

Versatile

2 - 21 inch beams
1 - 42 inch beam
1 - 50 inch Raschel beam

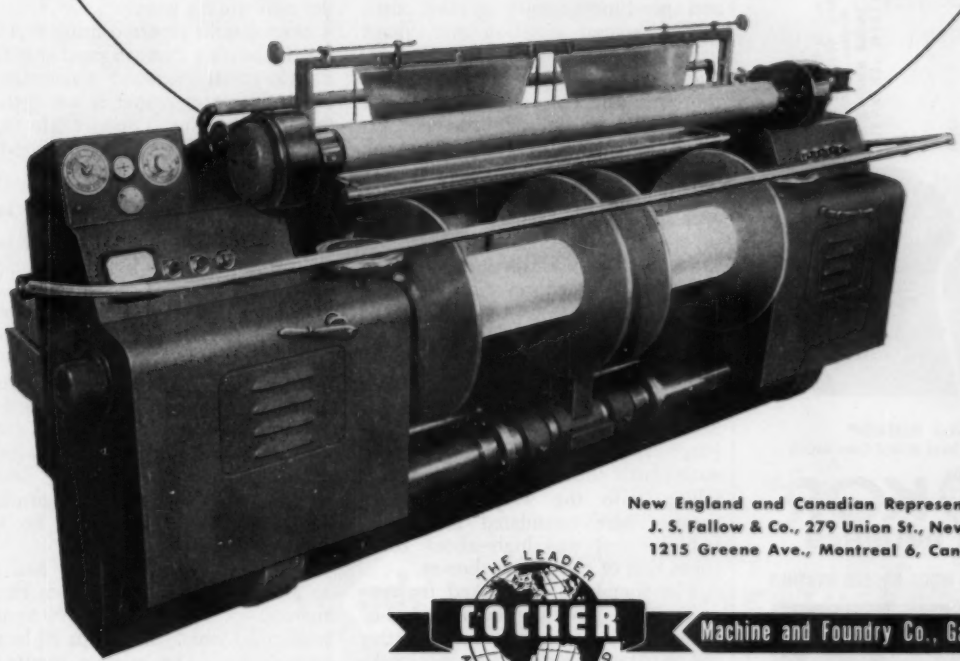
Fast

Normal sustained operating speeds up to 600 YPM.

Convenient

Individual controls are within full view and easy reach of operator. Simple changeover from one set-up to another. Has all of the most modern features and safety devices.

Let us give you full information on this revolutionary Tricot Warper.



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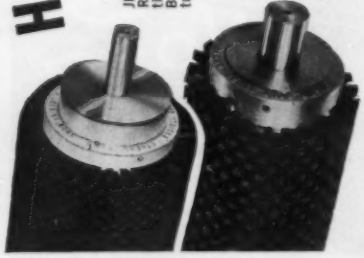
You'll have plenty of company for Textile Mill men everywhere are using Jenkins' METLKOR Brushes for every *textile brushing application*. They're built better to perform better and to *last longer*.

JENKINS' METLKOR NAP RAISING BRUSH. Bristled with Nylon, Hog Bristle, Fibre or Mixtures.

JENKINS' METLKOR FURNISHER BRUSH. The choice of leading Textile Printers. Dupont Tynex Nylon bristle.



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CYLINDER BRUSHES
and LIFEWOOD® WOOD BACKED BRUSHES

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Maintenance Tips For BOX LOOMS

North Carolina and Virginia mill men gave their experiences with a number of box-loom problems at a recent STA meeting. Among the subjects discussed were—

- Laminated vs. hickory picker sticks
- Aluminum, wood, and plastic harness sheaves
- Shuttle maintenance
- Loom cleaning and lubrication

THE NORTHERN NORTH CAROLINA-VIRGINIA DIV., SOUTHERN TEXTILE ASSOCIATION, discussed problems of box weaving at its spring meeting at Danville, Va.

"Which is better at the box end, a laminated or a hickory-wood picker stick?" was the first question asked.

It was generally agreed that the laminated picker stick, being tougher than some of the loom parts, causes breakage at the box end when the loom bangs. The hickory stick will break and prevent breakage of more-expensive parts.

Although the laminated picker sticks have about eight times longer life than hickory sticks at only about four times the cost, it was agreed that it is poor economy to save on sticks and spend more money on other parts.

The second question was about using a fibre sheath on the picker rod. Some members expressed dissatisfaction with the fibre sheath because it would stick on the rod. The loomfixers were having trouble boxing the shuttles.

One mill reported experimenting with stainless-steel picker rods, and another mill is putting in larger picker rods. Neither of these mills is having trouble with the picker sticking on the rod.

Mills Like Aluminum Sheaves

The relative merits of various types of harness sheaves were discussed. Some mills said wood sheaves were satisfactory. Some were having trouble with plastic sheaves because of residue falling onto the warp. Aluminum sheaves were considered satisfactory but the cost was high—about three times that of the plastic sheaves.

The members were asked for suggestions on how to prevent jerked-in filling. The Livermore thread cutter was mentioned as the best device to prevent jerk-ins on the filling change. For the prevention of jerked-in filling at the box end, one member recommended the Harris motion.

There was a diversity of opinion on the causes of set marks in cloth. Some of the set marks were attributed to the let-off motion and some to the setting of the whiproll, take-up roll, or harnesses.

Molded Shuttles Are Being Tried

The subject of shuttle maintenance drew many responses. One mill reported a program of dressing the shuttles 25 times a year. The shuttles are dressed with a solution of about 20% shellac and 80% oil.

Another mill has its fixers go over a third of the shuttles at the beginning of each shift. Others have a similar program but inspect the shuttles only once a week.

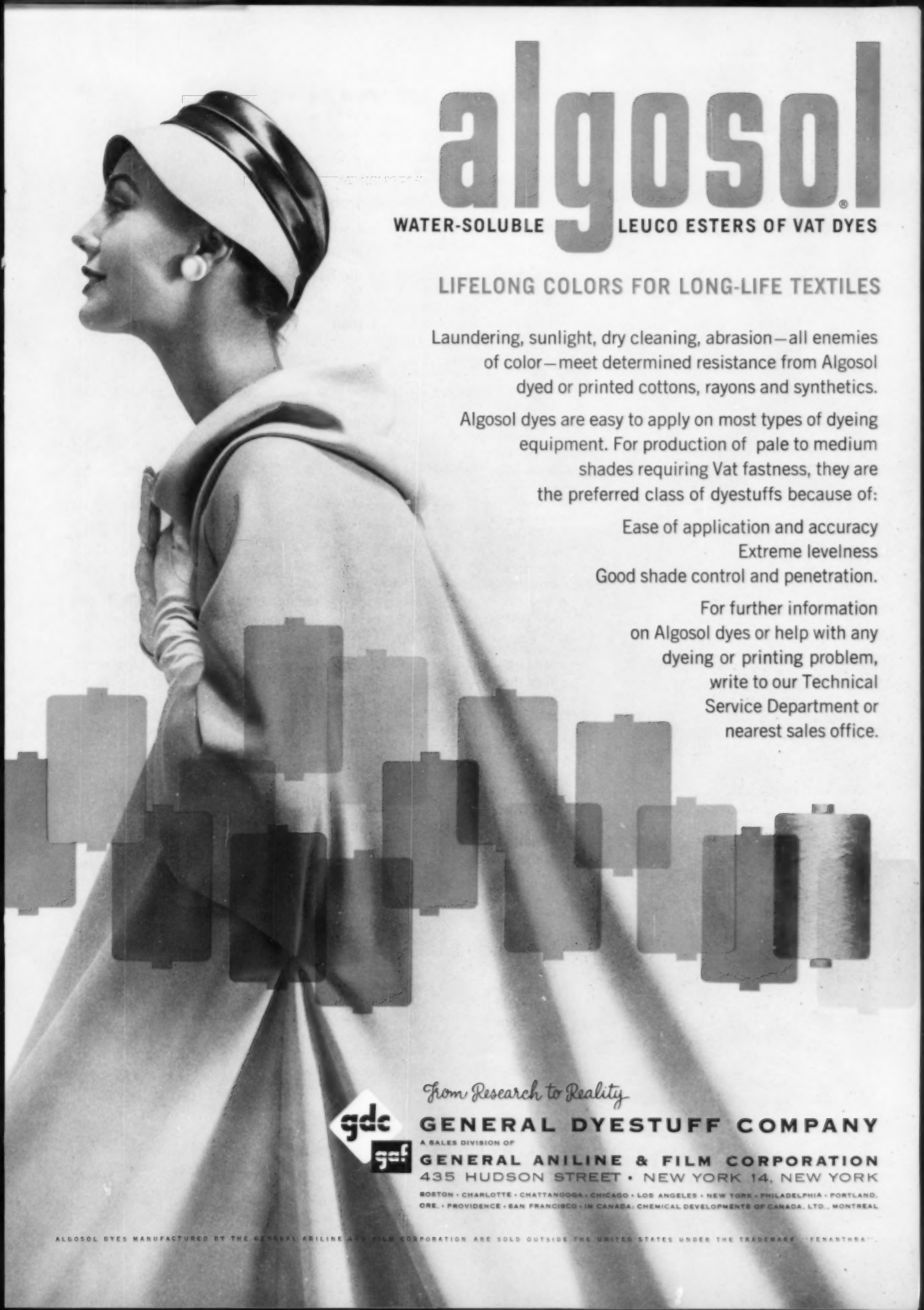
Several mills reported using molded plastic shuttles. It was agreed that this shuttle greatly reduced maintenance. One mill reported that it was getting four times as much service life from the molded shuttle at only twice the cost of a dogwood shuttle.

Looms Are Cleaned at Warp-Out

The next question was about preventive-maintenance schedules for the loomfixers. Most of the mills have all looms checked thoroughly when warps run out. One mill has a card listing all the items to be checked, and a spot-check is made by the supervisor after the loomfixer signs the card.

Some discussion of lubrication problems followed. It was generally agreed that (1) a responsible person should lubricate looms and (2) a well-planned lubrication schedule should be followed for best results.

One mill reported that it had set up a regular schedule for loom cleaning: one operator blows off 100 looms, brushes 10 looms, and mops 20 looms every 8 hrs. The relative merits of various cleaning solutions were also discussed.



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LIFELONG COLORS FOR LONG-LIFE TEXTILES

Laundering, sunlight, dry cleaning, abrasion—all enemies of color—meet determined resistance from Algosol dyed or printed cottons, rayons and synthetics.

Algosol dyes are easy to apply on most types of dyeing equipment. For production of pale to medium shades requiring Vat fastness, they are the preferred class of dyestuffs because of:

Ease of application and accuracy
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ALGOSOL DYES MANUFACTURED BY THE GENERAL ANILINE AND FILM CORPORATION ARE SOLD OUTSIDE THE UNITED STATES UNDER THE TRADEMARK "FENANTHRA".

Automatic Winders for Rewound Filling

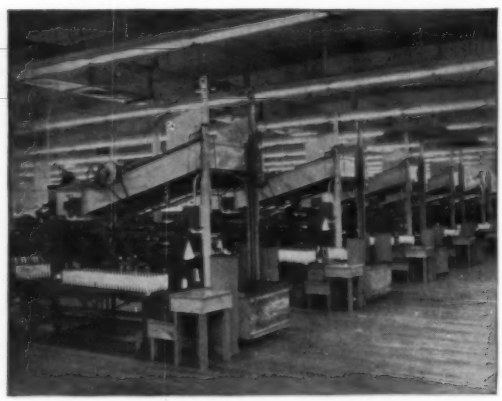
to take advantage of large package spinning, more yarn on filling bobbins, more uniform bunches, better weaving bobbins, and inspected yarn, all of which go to make a better fabric.

Abbott Traveling Spindle Package Winders

Automatic Cone or Tube Winders for warping, dyeing, twisting, quilling, sales.

Can be equipped with any one of a variety of slub catchers and inspection devices.

Production up to 1000 bobbins per hour per operator.



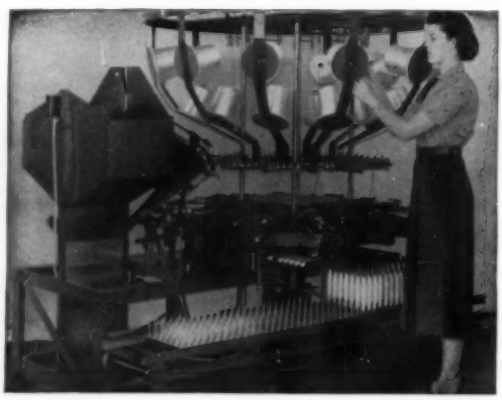
Abbott Traveling Spindle Automatic Quillers

For winding coarse cotton, worsted, woolen yarns, etc., equipped to doff automatically into baskets, or stack automatically into boxes.

Abbott Model II High Speed Automatic Quillers Over 10,000 RPM

For winding fine cotton, spun synthetics, filament rayon and nylon, etc. with automatic pinboard attachment or wide belt inspection conveyor, or bobbin stacker.

Production up to 2500 bobbins per hour per operator.



Abbott Fully Automatic Radial Quiller

For smaller lots and widely diversified mills.

For winding cotton, spun rayon, filament rayon, worsted, wool, etc.

Can be arranged to deliver bobbins to Pinboard Attachment, or into baskets, or into wide belt conveyor.

One operator can run several machines producing up to 2000 bobbins per hour per operator.

Can be equipped with measured yardage device for two-shuttle looms.

ABBOTT MACHINE CO., INC.

WILTON, NEW HAMPSHIRE

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How To Dye Nylon By the Chemnyle Method

- A new dyeing assistant is the key to getting level dyeings on nylon with acid, chrome, or direct dyes, making possible a range of faster, brighter colors

THE CHEMNYLE METHOD of dyeing is simple and requires no profound technical knowledge for its application. The filament-nylon goods are prepared conventionally. They are then treated for a period of 10 mins. in from 2 to 3% Chemnyle dyeing assistant, 2% Triton X-67, and formic acid to provide a pH of approximately 3.5

The recommended dyestuff solution is added to the bath, and the dyeing is carried out at 190° to 200° F. in conventional fashion. After color matching, the dyeing is washed off at 160° F. If 160° F. washfastness is required, the goods should be aftertreated in the recommended fixing agent for the specific dyestuffs. Katanol 0-50 and Chromofix B are among those that have been found useful.

Chrome dyestuffs may be used to great advantage in shades ranging from light medium to black. The colors are chromed by conventional methods to give good washfastness at temperatures ranging from 160° to 212° F.

Dye Selection Is Important

The question of dyestuff selection is of paramount importance, because it has been established that there are what may be classified as slow-, medium-, and fast-drawing colors; and although it is preferrable to use dyestuffs from a given classification, mixtures of slow- and medium-, and medium- and fast-drawing types are permissible.

The dyeing rates of individual dyestuffs may be entirely different under Chemnyle conditions than they would be if dyed under normal dyeing conditions. It is also interesting to note that all the selected dyestuffs, whether direct, milling, or acid types, are applied from the same amount of formic acid.

Dyestuff selection is also very important from the standpoint of colorfastness to light and washing; and it should be pointed out that the use of the Chemnyle process is not an automatic guarantee of good fastness. The dyestuffs that have been chosen through careful research have been found to possess the listed properties. Prototypes may work equally well; but it is stressed that standardizing materials may adversely affect results.

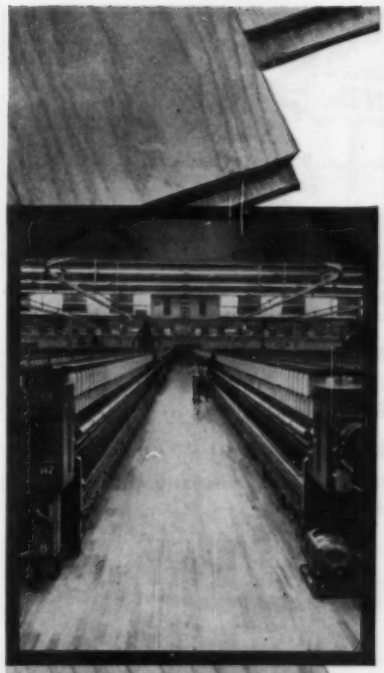
The Chemnyle process produces wetfastness of a very high order on filament nylon. Lightfastness is equivalent to that normally produced on nylon with the types of dyestuffs listed, which are superior to disperse types. Selected chrome-type dyestuffs can be expected to give lightfastness of from 20 to 100 Fade-Ometer hours. Unfortunately, neutral-dyeing premetalized types have not been found applicable by the Chemnyle method.

Optical bleaches may be applied by the Chemnyle process to give extremely uniform results, whereas application under normal conditions shows the same nonuniformities associated with acid dyestuffs. This development may also have far-reaching importance because whites have hitherto presented serious problems.

A summation of the results obtained from the Chemnyle process thus far shows that:

1. Streakiness normally associated with dyestuffs other than disperse types has been virtually eliminated in many cases and reduced to an acceptable minimum in others.
2. Good washfastness has been obtained at 120 to 140° F., which can be boosted to 160° F. by aftertreatments. Many chrome dyestuffs yield excellent washfastness at 160° F.
3. Lightfastness is similar to normal results with acid and direct dyestuffs on nylon and ranges between 15 and 80 hrs. Selected chrome dyestuffs give lightfastness ranging from 40 to 80 hrs., depending on the shade.
4. Shades of a brilliance not normally associated with filament nylon may be obtained.
5. The hand and touch of goods dyed with the Chemnyle process is of a softer, fuller, and more-rounded nature than by normal methods.

From a paper presented by W. H. Hindle at a meeting of AATCC in Greenville, S. C.



easy!
–on the feet
–on the eyes
–on the budget

The **MFMA** brand on the underside of genuine Northern Hard Maple is your guarantee. You *know* your floor will fight scars and dents for years—won't splinter — will brush clean easily, be easy to finish or refinish. It'll create no dust, harbor no dirt, and *feel wonderful under foot.* Write for 1957 list of **MFMA**-approved floor finishing products. See Sweet's (Arch. 13j-MA) for full data.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
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NORTHERN HARD MAPLE
the finest floor that grows
BEECH and BIRCH

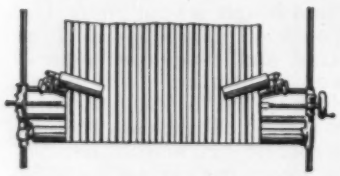
***WORLD-FAMOUS GUIDER** for motorists is the road marker to indicate direction of travel.*

***WORLD-FAMOUS**, too . . . in textile manufacturing is the ever-dependable*

MECHO AIR GUIDER

FAMOUS FOR SAVING HUNDREDS AND HUNDREDS OF DOLLARS YEARLY BY

- **minimizing costly equipment repair "down-time"**
- **eliminating double edges and spattering**
- **speeding fabric processing**
- **preventing woven fabric spoilage**
- **maintaining cloth alignment and constant width**



Add to all the above advantages: no weights, levers, nor linkages to bother with, extremely low initial and operating costs, infinite adjustability to handle fabrics from the lightest to #8 duck, even in operation . . . then you'll understand why MECHO is considered the greatest buy in Guiders! *ORDER yours TO-DAY.* You'll wonder how you ever got along, without it.

FREE! Write for Catalog and ask about MECHO's complete Guiding Service, standard in hundreds of finishing plants handling semi-rigid plastics, artificial leather and rubber, felt, and gauze. Stainless steel, acid- and moisture-resistant units with sealed bearings also available.

GUIDER SPECIALTY COMPANY
427 W. Rock Ave.,
New Haven 15, Conn.

Hot-Lime-Zeolite Treatment Improves Boiler Water

An application of hot lime zeolite almost completely removes the hardness of water external to a boiler installed in 1954. This boiler is one of four used to make comparisons with and without the hot-lime-zeolite treatment.

The boiler is a new type of combination waste-heat and externally fired boiler. Its rated capacity is 340,000 lbs. per hr.; drum pressure is 700 psi.-ga.; it has an economizer to heat the feed water from 270° F. to 430° F.; and make-up is about 60%.

The water supply to the plant comes from wells and has the analysis as shown in the accompany table.

This water supply is unusual in that the alkalinity exceeds the hardness so that 89 ppm. of sodium bicarbonate are present. Consequently no soda ash is required for the hot-process treatment.

Instead, gypsum (calcium sulfate) is added to decrease the magnesium this sodium alkalinity by converting it to sodium sulfate and precipitated calcium carbonate.

Water supply	Ppm.
Total solids	240
Hardness (as $CaCO_3$)	67
Alkalinity (as $CaCO_3$)	156
Silica (as SiO_2)	20

Silica Is Reduced in the Sludge

Only enough excess carbonate alkalinity is left to drive the calcium hardness down. Some excess of lime is added to decrease the magnesium to the desired minimum.

To reduce the high silica present, part of the lime added (for conversion of bicarbonate to carbonate) is dolomitic and contains over 30% magnesium oxide. This MgO has good silica-absorptive power at high temperature.

Sludge is recirculated from the sludge cone to the top of the sedimentation tank to provide adequate concentration of MgO in contact with the incoming water, which reduces the silica as desired.

Following the hot-process external treatment, several supplementary chemicals are added for internal treatment in the boiler. The amount of these chemicals and the limit of excesses maintained in the boiler water (boiler salines) are varied as conditions change. The latest practice is:

1. Phosphate. Sodium hexa-metaphosphate (67% P_2O_5) is added to maintain 10 to 15 ppm. of excess PO_4 in the boiler salines. This mixture reacts with any calcium hardness in the feed water to precipitate it as calcium phosphate sludge in the boilers.

2. Sulfite. Sodium sulfite is added to maintain 8 to 12 ppm. of excess sulfite (as Na_2SO_3) in the boiler salines to react with any dissolved oxygen in the feed water.

3. Nitrate. Sodium nitrate is added to maintain 80 to 90 ppm. of nitrate (as $NaSO_4$) in the boiler salines to inhibit caustic embrittlement.

4. Filming amine. A filming amine is added to the feed water to inhibit return-line corrosion. The iron in the condensate formerly was 0.7 ppm., and now it averages 0.05 ppm. expressed as Fe.

5. Carryover control. To prevent carryover, the total solids in the boiler salines are maintained below 1,700 to 2,000 ppm. by adequate boiler blow-off; and the hydroxide alkalinity is kept below 15 to 20% of the total solids.

The gypsum and the boiler blow-off together control the alkalinity. The blow-off is about 9 to 10% of the make-up.

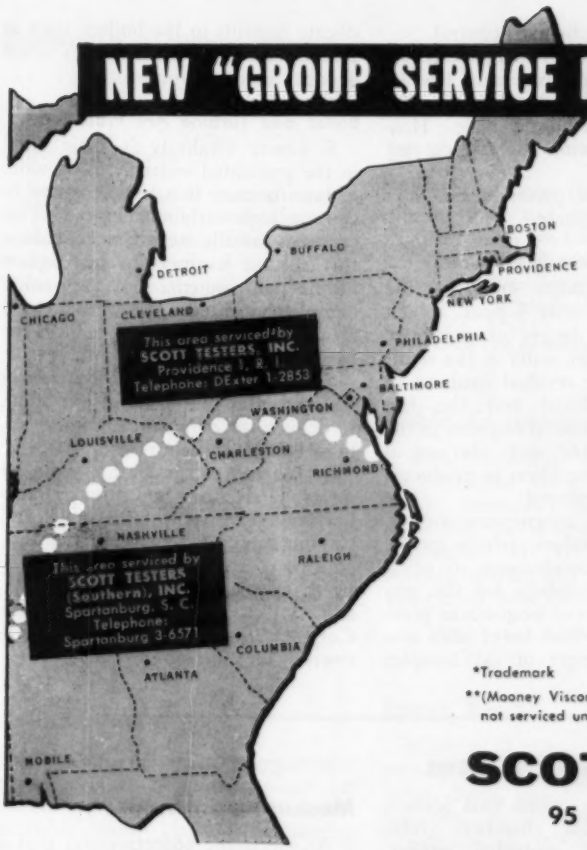
Chemicals Give Positive Results

The hot-lime-zeolite plant has the following advantages:

1. Greater flexibility in the pretreatment and certainty of results. If the lime pretreatment varies for any reason and therefore does not reduce the water hardness as low as desired, the hot zeolite removes all the residual hardness. This factor relieves the op-

NEW "GROUP SERVICE PLAN" *now available to Scott Tester* owners*

Provides maintenance servicing at fixed low rate



By pre-arrangement under the Group Plan, a Scott service man will call to inspect, clean, calibrate and adjust your Scott Tester**, and also effect minor repairs, providing you with a work report and the Certificate of Calibration so often mandatory on government contracts.

Low group rate results from including your plant with others. Regular trips are made in areas shown. Contact the Scott plant in your area for details.

SPECIAL SERVICE NEEDS are handled on an individual basis to insure immediate service at any time.

*Trademark

**(Mooney Viscometers and RMA Cushion Testers are not serviced under Group Plan)

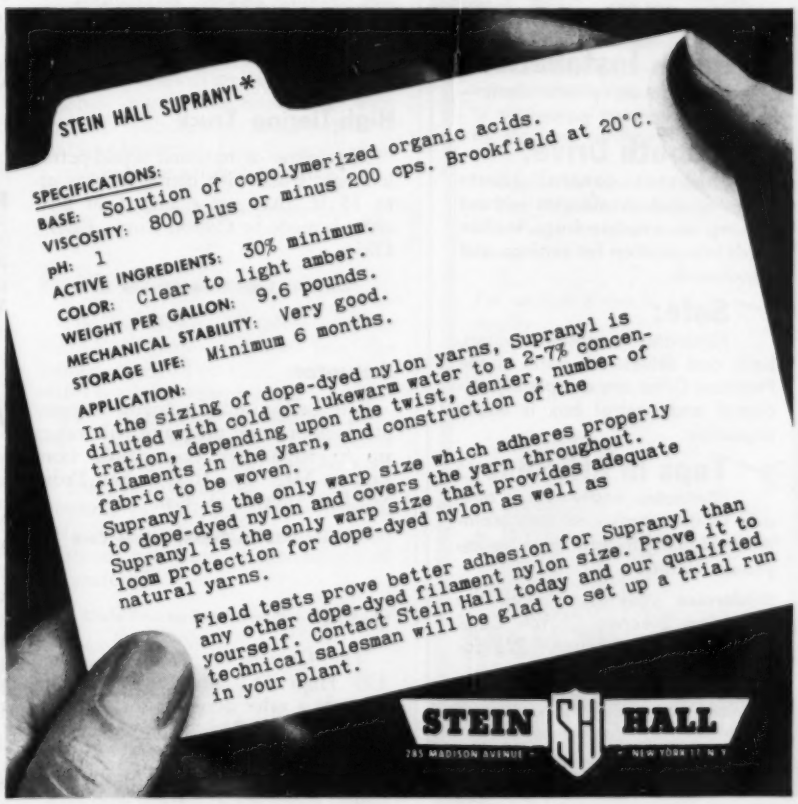
SCOTT TESTERS, INC.

95 Blackstone St., Providence, R. I.

Eliminate broken filaments on Dope-Dyed Nylon with STEIN HALL SUPRANYL

Supranyl possesses unusual adhesion properties for dope-dyed yarn where the normal polyacrylic sizes fail to render adequate loom protection against broken filaments. Light amber in color, it is readily removable in the scouring bath.

* Above material extracted from Stein Hall Technical Bulletin. Available on request.

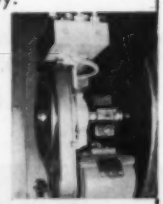

STEIN HALL SUPRANYL*
SPECIFICATIONS:
BASE: Solution of copolymerized organic acids.
VISCOSITY: 800 plus or minus 200 cps. Brookfield at 20°C.
pH: 1
ACTIVE INGREDIENTS: 30% minimum.
COLOR: Clear to light amber.
WEIGHT PER GALLON: 9.6 pounds.
MECHANICAL STABILITY: Very good.
STORAGE LIFE: Minimum 6 months.
APPLICATION:
In the sizing of dope-dyed nylon yarns, Supranyl is diluted with cold or lukewarm water to a 2-7% concentration, depending upon the twist, denier, number of filaments in the yarn, and construction of the fabric to be woven.
Supranyl is the only warp size which adheres properly to dope-dyed nylon and covers the yarn throughout. Supranyl is the only warp size that provides adequate loom protection for dope-dyed nylon as well as natural yarns.
Field tests prove better adhesion for Supranyl than any other dope-dyed filament nylon size. Prove it to yourself. Contact Stein Hall today and our qualified technical salesman will be glad to set up a trial run in your plant.
STEIN SH HALL
285 MADISON AVENUE - NEW YORK 17 N. Y.

For more data, write this page number on Reader-Service card. →

The *New* **Precision Card Drive** *Complete Compact Safe*

Complete:
A preassembled package unit including motor, drive, and control box. No extras to buy.

Compact:
Requires same space as pulley units.
(Top view)



Quick Installation:
Just slide on cylinder shaft — bolt — and connect power.

Smooth Drive:
Rheostat control starts smoothly and accelerates without jerking or overloading. Inches cards into position for settings and adjustments.

Safe:
Eliminates exposed pulleys, belts and drives. All parts of the Precision Drive are completely enclosed and control box is easily accessible.

Tops in Efficiency:
Eliminates costly down time due to line shaft and belt maintenance. Smooth positive drive improves quality.

Modernize your cards with the Precision Electric Clutch Card Drive. Write for Bulletin 225 for complete information.

Precision Gear & Machine Co.
2001 N. Tryon St. • ED 4-6857
Charlotte 1, North Carolina

erator of precise chemical control.

2. The economizer in the plant requires feed water extremely low in oxygen hardness and high in pH value to avoid corrosion and scale. Hot-lime-zeolite systems meet these requirements.

3. The zeolite preserves the supplementary phosphate.

Clear Boiler Water Is Obtained

4. The suspended solids in the boiler water are only 5 ppm., which result in little danger of carryover. This clearer boiler water is the result of the negligible residual hardness in the zeolite effluent and the low amount of phosphate precipitate in the boiler. The zeolite units also act as excellent polishing filters to produce a sparkling clear effluent.

5. Silica and magnesium are reduced to low values, which greatly facilitates the maintenance of silica-phosphate relationships for the prevention of adherent magnesium phosphate deposits. This lower silica also reduces the danger of (a) complex silicate deposits in the boilers, such as acmite and analcite, and (b) silica deposits in the turbines.

Boiler and Turbine Are Protected

6. Lower alkalinity is maintained in the pretreated water by using more gypsum because it is not necessary to carry a high carbonate excess. This excess is usually necessary to reduce the calcium hardness to low figures in the pretreatment. But the zeolite completely softens the water. As a result, this lower alkalinity reduces the free CO_2 in the steam.

7. No zeolite resin has been lost or replaced after four years of operation. It delivers an effluent containing less than 1.0 pph. of hardness (as $CaCO_3$).

8. It removes the hardness and reduces the alkalinity and silica to limits low enough to protect the boiler and turbine from silica or other deposits, corrosion, and carryover. *Presented by B. E. Varon, Richfield Oil Corp., and S. B. Applebaum, Cochrane Corp., at the American Power Conference in Chicago*

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 252

trial-gas pressure switch that features a sealed pressure chamber, visible switch position, protected settings, and optional lock-out mechanism.

Circle T-50 on Reader-Service Card

High-Tiering Truck

A gasoline or optional liquid-petroleum-gas truck with lifting heights up to 15 ft. that can operated in 6-ft. aisles is made by Colson Corp., Elyria, Ohio.

Circle T-51 on Reader-Service Card

Actuator

The Ledeen quad actuator to operate high-pressure plug and ball valves up to 36-in. size is available from Ledeen Mfg. Co., 1600 S. San Pedro St., Los Angeles 15, Calif.

Circle T-52 on Reader-Service Card

Valve

The George W. Dohl Co., Inc., 430 High St., Bristol, R. I., announces a valve designed for handling erosive process flows or flows containing gritty solids.

Circle T-53 on Reader-Service Card

Measuring Instrument

An electronic potentiometer that is equipped with 9 pneumatic transmitters that will measure any variable that can be translated into an electrical quantity is announced by Bristol Co., Waterbury 20, Conn.

Circle T-54 on Reader-Service Card

Fork Trucks

A line of heavy-duty electric fork trucks with capacities up to 7,000 lbs. is announced by Lewis-Shepard, Watertown, Mass.

Circle T-55 on Reader-Service Card

Antiskid Coating

Printed corrugated-paper containers can be given an antiskid coating with a new quick-drying resin developed by National Adhesives Div., National Starch Products, Inc., 270 Madison Ave., New York 16, N. Y. The resin, called Resyn 32-3415, is applied by spraying the bottom of the cases as they leave the sealing machine. Palletizing and stacking are made easier because the treated cases do not slip from place.

Circle T-56 on Reader-Service Card

CONTINUED ON PAGE 261

CONTINUED FROM PAGE 260

Control Valves

Seven models of control valves featuring solenoid, cam operated, palm button, fingertip, foot operated, and hand lever are available from Humphrey Products, 202 N. Park St., Kalamazoo, Mich.

Circle T-57 on Reader-Service Card

Reproduction Machine

A table-top reproduction machine with 30-in. printing width and mechanical speed of 8 ft. 10 ins. per min. is announced by Charles Bruning Co., Inc., 4700 Montrose Ave., Chicago 41, Ill.

Circle T-58 on Reader-Service Card

Cylinder Mountings

Mountings designed to eliminate problems due to misalignment between cylinders and their loads are available from Hanna Engineering Works, 1765 N. Elston Ave., Chicago 22, Ill.

Circle T-59 on Reader-Service Card

Air Eliminator

Garton Heating Corp., Cranford, N. J., makes a high-pressure air eliminator for automatically venting equipment using steam pressures from 0 to 150 lbs.

Circle T-60 on Reader-Service Card

High-Speed Relay

Designed for dry-circuit and low-power application, a high-speed syncroverter relay is available from Bristol Co., Waterbury 20, Conn.

Circle T-61 on Reader-Service Card

Lift Truck

A straddle hand lift truck especially designed to accommodate leg clearances under 2 ins. for handling materials is available from Market Forge Co., 35 Garvey St., Everett 49, Mass.

Circle T-62 on Reader-Service Card

Lift Trucks

Precision power steering, automatic transmission, and positive-action hydraulic system are features announced for its Pace-Maker series of fork lift trucks by Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio.

Circle T-63 on Reader-Service Card

Cable Conveyor

M-A Standard Corp., 513-521 Communipaw Ave., Jersey City 4, N. J., announces its Monoflo Conveyor that moves items in or out of a radioactive or contaminated area without moving any part of the conveyor itself from the area.

Circle T-64 on Reader-Service Card

Epoxy Resins

A series of epoxy resins that will provide corrosion-resistant surfaces for tanks, floors, and masonry has been marketed by Bakelite Co., Div. of Union Carbide & Carbon Co., 30 E. 42nd St., New York 17, N. Y. Four products are now available that may be formulated for spraying, painting, dipping, or roller coating; and each can be supplied in air drying or baking finishes. Two of the resins react with amines, polyamides, and urea-formaldehyde resins. One is supplied in a solution; the other is a solid resin.

Circle T-65 on Reader-Service Card

Plastic Valve Units

The liquid end of valves used in controlled-volume pumps can be formed of Plio-Tuf P100 in low-pressure moderate-temperature applications. The material is made by Goodyear Tire & Rubber Co., Chemical Div., Akron, Ohio, and can be used at temperatures up to 160° F. and pressures to 150 psi. Low material cost, less machining, and corrosion resistance are cited as advantages of the material.

Circle T-66 on Reader-Service Card

Oil-Bath Air Filter

An oil-bath air filter with very low energy requirements has been announced by Air-Maze Corp., 25,000 Miles Rd., Cleveland 28, Ohio. Suited

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will visit your plant upon
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to compressors, stationary gas engines, and blowers, the unit is available in capacities from 800 to 24,000 cu. ft. per min. Pressure drops as low as 0.6 in. and no higher than 3.5 ins. are characteristics of the filters.

Circle T-67 on Reader-Service Card

Noiseless Blast Burner

A laboratory burner that will work Pyrex glass, Vycor glass, and quartz has been developed by Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa. Flame size and shape are adjustable without changing tips, and oxygen and gas are channeled in such a way as to make the burner noiseless. The burner has many other uses in laboratories where a high-temperature source is necessary.

Circle T-68 on Reader Service Card

Automatic Tying Machine

Bundles, bolts of fabric, or other packages can be tied automatically by a machine developed by B. H. Bunn Co., 7605 Vincennes Ave., Chicago 20, Ill. The tying mechanism is started by the weight of the bundle as it is placed on the table of the machine and is completed in 1½ secs.

Circle T-69 on Reader-Service Card

Small Turbines

Steam turbines with built-in safety features have been announced by L. J. Wing Mfg. Co., Linden, N. J. Buckets are welded to the rotor; and if both load and governor fail, the buckets will be released from the weld before the rotor can burst from centrifugal force.

Circle T-70 on Reader Service Card

Pneumatic Strapper

An air-operated hand-held strap tightener has been marketed by Stanley Works, New Britain, Conn. The tool weighs 4 lbs. and can handle 0.02-in.-thick strap in ⅜- or ¾-in. widths. Predetermined tension on the strap can be had by setting the air-pressure regulator.

Circle T-71 on Reader-Service Card

Timing Meters

The actual amount of time spent in productive work can be noted on machines equipped with a.c. meters developed by John W. Hobbs Corp., Div. of Stewart-Warner Corp., Springfield, Ill. The instruments are available in the most commonly used voltages and cycles of alternating current.

Circle T-72 on Reader Service Card

Electric Fork Truck

A redesigned fork truck made in capacities of 2,000, 3,000, and 4,000 lbs. has been introduced by Elwell-Parker Electric Co., Cleveland 3, Ohio. The battery compartment has been lowered to permit the operator to sit 18 ins. lower than in previous models. The fork is actuated hydraulically.

Circle T-73 on Reader Service Card

Nonskid Tread Plates

An aluminum tread plate with an abrasive surface has been marketed by Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa. The plates are suggested for use in factory areas, loading platforms, or other places where dangerous slipping hazards exist. Oil or water does not affect the nonskid qualities of the plates.

Circle T-74 on Reader Service Card

Photostat Envelope

Bakelite polyethylene is used to make protective envelopes for photostats and blue prints by Wrapture, Inc., 133-30 32nd Ave., Flushing 54, N. Y. The envelopes are resistant to water, oil, grease, and handling wear.

Circle T-75 on Reader Service Card

Spray Coating

Surface Engineering Co., Inc., P.O. Box 2273, 1535-39 Barwise Ave., Wichita 1, Kan., announces a spray-on plastic coating based on Bakelite vinyl resins. The supplier claims that this coating will eliminate the need for repainting outside surfaces for a minimum of eight years.

Circle T-76 on Reader-Service Card

Window Lock

Pilgrim Products Co., 10 Clarence St., Worcester, Mass., markets a window lock that permits the window to

be securely locked in a partially opened position. Easy to install, the lock fits any standard-size wooden-frame window.

Circle T-77 on Reader-Service Card

Electric Truck

Lewis-Shepard, Inc., Watertown, Mass., has introduced its improved line of "walkie" electric trucks. The trucks include the Jacklift Electric and the Jack-Stacker models and feature convenient controls that can be operated with the handle in any position.

Circle T-78 on Reader-Service Card

Plastic Tank Liner

Old masonry or metal tanks that have developed small leaks can be made watertight with a synthetic lining material developed by Bakelite Co., Div. of Union Carbide & Carbon Corp., 30 E. 42nd St., New York 17, N. Y. Called Krene, the material is fabricated to fit the tank and is then suspended in it by suitable means. The film is only 0.220 in. thick but is durable and resistant to most chemicals.

Circle T-79 on Reader-Service Card

Weed Killer

Fence lines, power poles, and other areas can be kept free of unwanted vegetation with products available from E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del. Called Telvar, the series includes two chemicals suited to varying degrees of rainfall. The chemicals are supplied in the form of wettable powders and are applied by spraying at the rate of 20 to 40 lbs. per acre.

Circle T-80 on Reader-Service Card

Electronic Controls

The Sparks-Withington Co., Jackson, Mich., announces 21 standard component parts that can be used to construct a remote control system. The Modular units are inexpensively mass-produced, are hooked up by plug-in units, and utilize a single standard communications channel that can handle hundreds of control and supervisory functions at great distances.

Circle T-81 on Reader-Service Card

Floor Machine

A floor machine that weighs only 35 lbs. has been introduced by Multi-Clean Products, Inc., 2277 Ford Pkwy., St. Paul 1, Minn. It is for polishing floors in areas up to 2,000 ft.

Circle T-82 on Reader-Service Card

Directional Valve

A line of solenoid-operated and controlled directional valves for industrial oil-hydraulic systems is announced by Vickers, Inc., Detroit 32, Mich. Called the DG-5 model, there is ample room in the valve body for making electrical connections, and the need for a separate conduit box is eliminated.

Circle T-83 on Reader-Service Card

Glue Sealer

A carton bottom-flap gluer is announced by General Corrugated Machinery Co., Palisades Park, N. J. Designed for one-man operation, the gluer applies the glue in exact quantities, closes the flap, and holds under pressure until sealed.

Circle T-84 on Reader-Service Card

Electrode Holder

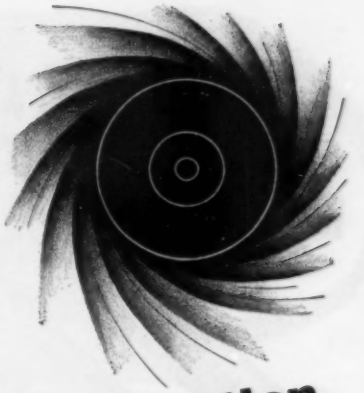
A light weight arc welding electrode holder is announced by Tweco Products, Inc., Wichita, Kan. Called the No. AL-300 Twecotong, the holder has a body and upper lever made of aluminum forgings and is about 50% lighter than conventional holders made of copper castings.

Circle T-85 on Reader-Service Card

Protective Paint

A neoprene-based paint for exterior use in many industrial applications is available from Wilbur & Williams Co., 130 Lincoln St., Boston 35, Mass. Supplied in four colors, the paint is recommended for tanks, structural work, masonry, canvas covers, air-conditioning ducts, and any place where extreme humidity or weather conditions require a protective coating.

Circle T-86 on Reader-Service Card



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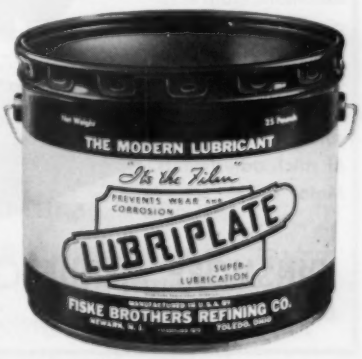

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NEWS ABOUT SUPPLIERS

ACME STEEL CO., Chicago, Ill.—Has broken ground for a new $23,000,000 steelmaking plant in Riverdale, Ill. . . . **ALLIED CHEMICAL & DYE CORP., GENERAL CHEMICAL DIV.**, New York, N. Y.—Has appointed Irb H. Fooshee executive vice president and James G. Fox, Jr., vice president. Neal M. Draper has been appointed assistant to the executive vice president of National Aniline Div. . . . **AMERICAN CYANAMID CO.**, New York, N. Y.—Has announced the establishment of a sales and merchandising organization for the marketing of Creslan. Managers of four departments that will service the new fiber's end-product areas are: C. D. Reich, manager of sales and merchandising to the woven-goods field; G. P. Vescio, manager of sales and merchandising to the knit-goods field; W. G. Fash, manager of sales and merchandising to the home-furnishings field, and I. Y. T. Feng, manager of export and special-product sales. C. W. Bendigo has resigned as technical director of the Fibers Div.

ROBERT GLASS has joined Stein, Hall & Co., Inc., New York, N. Y., as general sales representative at its New York branch office. L. L. FRONEBERGER, JR., (center) has been appointed district sales manager for the South for The Bullard Clark Co., E. H. Jacobs Northern and Southern Divisions, Charlotte, N. C., and Danielson, Conn. MORRIS A. KIMMEL (right) has been appointed New England sales representative for Colton Chemical Co., Cleveland, Ohio.

AMERICAN VISCOSE CORP., Philadelphia, Pa.—Has appointed Thomas O. Williams assistant sales manager of the Film Div. Leon F. Bishop has been appointed Northwestern sales representative. B. Jagger has been assigned to the Industrial Div., Technical and Textile Service Dept. A. J. Gallagher has been named head of the Finishing Section, Product Converting Dept., Film Div., Marcus Hook, Pa.

ARKELL & SMITH, Canajoharie, N. Y.—Has appointed R. P. Kessler director of research and development. . . . **BECCO CHEMICAL DIV., FOOD MACHINERY & CHEMICAL CORP.**, Buffalo, N. Y.—Has promoted F. A. Gilbert to the newly created position of manager, market research. . . . **THE BORDEN CO., CHEMICAL DIV.**, New York, N. Y.—Has named George C. Sheldon operating manager for the Peabody operation of the Coatings and Adhesives Dept. . . . **THE BRISTOL CO.**, Waterbury, Conn.—Has opened a new sales office in Portland, Ore. The Newark, N. J., sales and service staff has moved into new headquarters at 744 Broad St.

CAMERON & BARKLEY CO., Jacksonville, Fla.—Has been made master parts distributor for Yale & Towne Mfg. Co.'s Materials Handling Div. . . . **CELANESE CORP. OF AMERICA**, New York, N. Y.—Has announced that Paul D. White has resigned as general mechandising manager of the Textile Div. Fletcher Horn has been promoted to assistant to the general manager of the division. . . . **CHAINVEYOR CORP.**, Los Angeles, Calif.—Has appointed Fred Voss district manager covering the Midwestern states with headquarters in Chicago, Ill. Ellis

Jeffers has been appointed district manager of the Michigan, Ohio, western Pennsylvania and western New York area, with headquarters in Detroit, Mich.

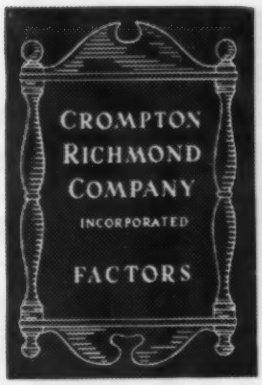
CHEMSTRAND CORP., New York, N. Y.—Has announced that Clinton A. Dyer has joined the Charlotte, N. C., sales office. George C. Elmes has been appointed leader of a newly established group in the fiber-development department. Elmes will be leader for the knitting group in the Throwing, Knitting, and Weaving Section. Norman Thurnauer will be leader for the weaving group. . . . **COLUMBIA-SOUTHERN CHEMICAL CORP.**, Pittsburgh, Pa.—Has appointed C. T. Robertson district manager for the Chicago, Ill., sales office. . . . **CONTINENTAL CAN CO.**, New York, N. Y.—Has announced that L. P. Muller & Co., Philadelphia, Pa., will handle the distribution and sales of its Conomet metallic-yarn products in all states except Alabama, Georgia, Tennessee, Mississippi, and Florida.

JACK W. STANLEY (left) has been appointed a Southern sales representative of Curtis & Marble Machine Co., Worcester, Mass., with headquarters in Greenville, S. C. CHARLES E. HOLLIS (center) has joined the sales staff of Roberts Co., Sanford, N. C., and will travel out of Greenville, S. C. O. L. DAILY (right) has been appointed general sales manager of Pick Mfg. Co., Water Heating Div., West Bend, Wis.

CROWN ZELLERBACH CORP., San Francisco, Calif.—Has elected L. Merwin vice president and general manager of converted products, Gaylord Container Div. . . . **CRUCIBLE STEEL CO. OF AMERICA**, Pittsburgh, Pa.—Has appointed J. W. Slattery general supervisor of stainless-steel field sales, with headquarters in Pittsburgh. . . . **DENMAN TEXTILE RUBBER CO.**, Cuyahoga Falls, Ohio.—Has completed the rebuilding and modernization of its recently acquired plant. . . . **DIXON CORP.**, Bristol, R. I.—Has announced that R. R. Miller, president, has been selected as a member of the first European Productivity Agency sent to Greece.

DODGE MFG. CO., Mishawaka, Ind.—Has appointed Paul Jordan director of engineering. . . . **DOW CHEMICAL CORP.**, Midland, Mich.—Has announced that construction of an acrylonitrile plant is scheduled to begin early next year at Freeport, Tex. Alfred Greenfield has been appointed to the textile-fibers department, with headquarters in New York, N. Y. . . . **EATON MFG. CO., DYNAMATIC DIV.**, Kenosha, Wis.—Has started construction of a new office building as a final phase of its $2,300,000 expansion program announced last year. . . . **EMKAY CHEMICAL CO.**, Elizabeth, N. J.—Has appointed H. L. Dozier technical sales representative for Georgia and Alabama. . . . **FAIRBANKS, MORSE & CO.**, Chicago, Ill.—Has promoted J. C. Elmsburg to general sales manager and G. R. Anderson to chief engineer.

FRANKLIN PROCESS CO., Providence, R. I.—Has assigned J. W. Church, Jr., to the New York City sales area with head-



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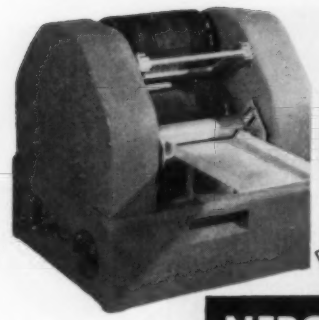

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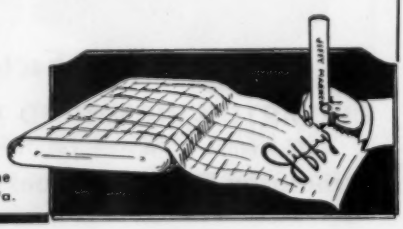

quarters in New York, N. Y. . . . **GENERAL ANILINE & FILM CORP.**, New York, N. Y.—Has announced that full-scale operation of its new surfactant plant at Calvert City, Ky., is now under way. . . . **GENERAL ELECTRIC CO.**, Waterford, N. Y.—Has appointed Reuben Gutoff manager of resin and fluids operation in the manufacturing section of the Silicone Products Dept. . . . **GENERAL MOTORS CORP., NEW DEPARTURE DIV.**, Bristol, Conn.—Has appointed F. J. Garbarino director of sales and engineering.

GOODYEAR TIRE & RUBBER CO., Akron, Ohio—Has announced that a new chemical division has been established within Goodyear International Corp. R. S. Savage and J. R. Kelly, Jr., have been appointed special representatives of the Chemical Div. Mr. Savage has been assigned to the Boston, Mass., office and Mr. Kelly to the Cleveland, Ohio, office. . . . **HEYDEN NEWPORT CHEMICAL CORP.**, New York, N. Y.—Is building a new naval stores plant at Telogia, Fla. . . . **INDUSTRIAL RAYON CORP.**, Cleveland, Ohio.—Has announced that William D. Benson has resigned as vice president in charge of sales. . . . **KEEVER STARCH CO.**, Columbus, Ohio—Will establish an analytical laboratory in Greenville, S. C.

SAM GURLEY, JR., (left) has been appointed vice president of sales for Olin Aluminum, New York, N. Y. RALPH E. TAYLOR (center) has been appointed branch manager for Wica Chemicals, Inc., Charlotte, N. C., with headquarters in Columbus, Ga. JAMES R. HILL (right) has been promoted to branch manager of the Mill Starch Div., Corn Products Sales Co., Atlanta, Ga.

MINNESOTA MINING & MFG. CO., St. Paul, Minn.—Has opened a new branch office and warehouse in Cincinnati, Ohio. . . . **NATIONAL VULCANIZED FIBRE CO.**, Wilmington, Del.—Has opened a new district office in St. Petersburg, Fla. . . . **OAKITE PRODUCTS, INC.**, New York, N. Y.—Has announced that D. O. Mundale has been transferred to Marion, Ohio, and J. E. Davenport has been assigned to Rocky Mount, N. C. . . . **PRICE SPINDLE & FLYER CO.**, Spartanburg, S. C.—Has completed an addition of 500 sq. ft. to its facilities. . . . **SKF INDUSTRIES, INC.**, Philadelphia, Pa.—Has acquired Tyson Bearing Corp., Massillon, Ohio.

SANDOZ CHEMICAL WORKS, INC., New York, N. Y.—Has appointed Charles W. Saalfrank assistant technical director of the Dyestuff Div. Otto P. Durheimer has been promoted to chief chemist of the application laboratories, New York, N. Y. . . . **C. G. SARGENT'S SONS CORP.**, Graniteville, Mass.—Has appointed John Law & Co., Chicago, Ill., as sales-engineering representatives for the Chicago, South Bend, Milwaukee area. . . . **SHAWINIGAN RESIN CORP.**, Springfield, Mass.—Has announced that Samuel T. Douglas, Jr., has joined the New England district sales office. . . . **TURBO MACHINE CO.**, Lansdale, Pa.—Has purchased the business of Smith, Drum & Co., Philadelphia, Pa. . . . **WESTINGHOUSE ELECTRIC CORP.**, Pittsburgh, Pa.—Will build a new manufacturing plant in Charlotte, N. C., which is scheduled for completion in mid-1958. . . . **WESTVACO CHLOR-ALKALI DIV., FOOD MACHINERY & CHEMICAL CORP.**, New York, N. Y.—Has appointed Robert J. DeLargey assistant division manager, operations.

NEWS ABOUT MILLS

COTTON MILLS

Amerotron Corp., Charlotte, N. C., expects to close its Louise plant. The Louise Avenue combed-lawn plant began its closing-out process late in June.

Botany Cottons, Gastonia Combed Yarn Div., Gastonia, N. C., has ordered 32 Pacemaker twisters, 200 spindles each, 5-in. gauge and 3½-in. ring, from Whitin Machine Works.

Buck Creek Cotton Mills, Siluria, Ala., has purchased all the outstanding stock of J. W. Sanders Cotton Mill, Starkville, Miss., and plans to resume operations as soon as possible.

Coats & Clark, Inc., New York, N. Y., is planning to establish weaving, dyeing, and finishing operations at the Albany, Ga., plant. The department's first production will be tape for the company's zipper production.

Dan River Mills, Inc., Danville, Va., plans to build a 50,000-sq.-ft. research and chemical-manufacturing unit on a 13-acre tract outside the city limits. The building will house the research staff and provide increased facilities for manufacturing resins and other products.

Fulton Bag & Cotton Mills, Atlanta, Ga., is converting 24 spinning frames to the Whitin system of Super-Draft. A total of 5,760 spindles is involved.

Palmetto Yarn Mill, Massachusetts Mohair Plush Co., Inc., Pageland, S. C., has announced expansion plans calling for an additional 8,000 sq. ft. of floor space at an estimated cost of $27,000.

Puritan Cordage Mills, Louisville, Ky., has purchased Blue Ridge Cord Co., Hendersonville, N. C.

Selma Mills, Selma, N. C., has been sold to M. B. Wilson, Smithfield, N. C. Sale of the mill building completes the liquidation of the mill except for the houses, which will be sold to the residents of the village.

WOOLEN AND WORSTED MILLS

Eastland Woolen Mill, Inc., Corinna, Me., has begun a $3,000,000 expansion program that includes the addition of two buildings totaling 100,000 sq. ft. and a large outlay for new equipment.

Firth Carpet Co., Burnsville Div., Burnsville, N. C., is installing four Whitin 84-in.-wide cards, eight Model E wool spinning frames, and eight Model K twisters.

National Spinning Co., Washington, N. C., plans expansion of its plant that will provide 30,000 sq. ft. of additional floor space.

Rockwell Woolen Co., Leominster, Mass., has been sold to Hale Mfg. Co., East Killingly, Conn.

Seymour Woolen Mills, Seymour, Ind., has been sold to United Industrial Syndicate, Inc., New York, N. Y. Studies are now under way as to the feasibility of revamping the operation to widen production from woolen blankets and apparel fabrics to include blends with man-made fibers.

Stowe Mills, McAdenville, N. C., has purchased the Spencer Mountain Mill property, Gastonia, N. C., from Duke Power Co. for an undisclosed price. It will process man-made fibers and wool.

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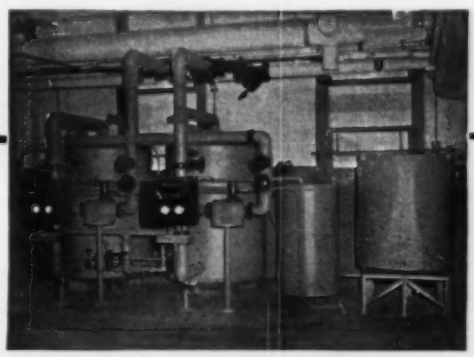

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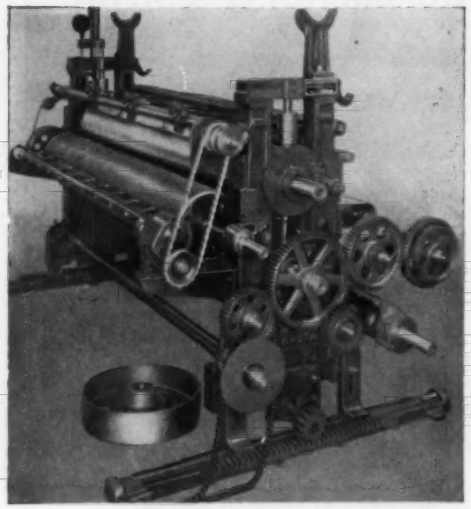

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French Worsted Co., Woonsocket, R. I., has purchased two 56-head rovers, 6x12, Model G 12 DW, from Whitin Machine Works. The company has also bought four 360-spindle Carniti spinning frames.

MAN-MADE-FIBER MILLS

B. F. Goodrich Co., Akron, Ohio, has bought 20 acres of land in Exeter Borough, Luzerne County, Pa., for the site of a new textile mill. The plant, which will have 80,000 sq. ft. of floor space and a large investment in machinery and equipment, is scheduled to start manufacturing rayon and nylon tire cord in 1958.

Pontiac Weaving Corp., Pawtucket, R. I., has purchased a portion of Almardon Mills, Inc., Cumberland, R. I. The Cumberland plant will make an additional 50,000 sq. ft. and 192 more looms available to Pontiac Weaving Corp. and will start operation this month.

Soule Mill, New Bedford, Mass., has been sold to Calvine Cotton Mills, a division of Smitherman Cotton Mills, Troy, N. C. Purchase price was $100,000.

Templon Spinning Mills, Inc., Mooresville, N. C., has formed a wholly owned subsidiary, Templon Spinning Mills (Canada) Ltd. The plant, now under construction in the township of Drummondville, Que., will be completed this month. The new company plans an operation spinning man-made-fiber knitting and weaving yarns and the twisting of novelty yarns of various fibers for both knitting and weaving.

KNITTING MILLS

Dallas Mfg. Co., Dallas, N. C., has been chartered to produce men's knitwear. The company has been operating since the middle of June in a pilot-plant setup. At present the company is employing 40 people in the production of T-shirts.

Harwood Hosiery Mills, Inc., Gilbertsville, Pa., has sold its one-story plant to Frank Kranzel, operator of F & M Sales, Philadelphia, Pa.

Johnstown Knitting Co., Johnstown, N. Y., has purchased Port Leyden Knitting Mill, Port Leyden, N. Y.

Revere Knitting Mills, Inc., Malden, Mass., will relocate its Malden and Melrose plants in Wakefield, Mass., in December. The company has purchased the building and land occupied by Murray Printing Co., Wakefield, Mass.

Sargon Knitwear, Perth Amboy, N. J., has been formed for the manufacture of children's sweaters. L. K. Kasher is supervising the operations of the new company.

Shannon Hosiery Mills, subdivision of Chadbourn-Gotham, Inc., Columbus, Ga., is closing.

Shoaf Hosiery Mills, Inc., Concord, N. C., has closed.

Vogue Mfg. Co., Grove, Pa., has sold its full-fashioned-hosiery mill.

DYEING AND FINISHING PLANTS

Carolina Yarn Processors, Inc., Tryon, N. C., is a newly formed company that will engage in dyeing, bleaching, glazing, and winding of all natural and man-made-fiber yarns. Operations will start early this month.

Northeastern Dye Works, Cumberland, R. I., is moving to Lafayette Spinning Mills plant, Woonsocket, R. I.

Richmond Piece Works, Inc., Richmond, Va., will be liquidated.

NEWS ABOUT MEN

Frank V. Andrello has been named managing supervisor of Gilbert Knitting Mills at Utica, N. Y.

James F. Bleinert has retired from Cone Mills, Inc., New York, N. Y. He handled out-of-town and Canadian trade.

Ronald R. Boyd has been promoted to executive vice president, Amerotron Corp., New York, N. Y.

Wendell Brandow has joined Amerotron Corp., New York, N. Y.

Joseph V. Brice has been named superintendent of Renfrew Bleachery, Abney Mills, Travelers Rest, S. C.

George R. Bridge has been named vice president and general manager of Continental Mills, Lewiston, Me.

Sydney Bruce has been elected president of Piedmont Plush Mills, Greenville, S. C., succeeding the late Fred W. Symmes. He will also continue as treasurer.

P. Carter has been promoted to superintendent at Startex Mills, Spartanburg, S. C.

Rupert M. Cassell has been promoted to assistant general manager of Roanoke Mills, Inc., Roanoke, Va.

George Chappell has resigned as woolen-division manager at Bachmann-Uxbridge Worsted Corp., Fitchburg, Mass.

ROY H. NIEBLING has been elected president of Sidney Blumenthal & Co., Inc., New York, N. Y. He succeeds William Heller, who has resigned.

Mark A. Cooper has been named assistant superintendent of the cotton mill at Ware Shoals Div., Riegel Textile Corp., Ware Shoals, S. C.

George Cornell has been named vice president in charge of yarns and special fabrics at Callaway Mills, LaGrange, Ga.

J. H. Davenport, Jr., has been elected president of Davenport Hosiery Mills, Inc., Chattanooga, Tenn.

Louis D. DeLoach has resigned as executive vice president of Glendale Mills, Inc., Spartanburg, S. C.

Clement Dostie has been appointed overseer of carding at the Edwards Div., Bates Mfg. Co., Augusta, Me.

HARRY O. ROHRER (left) and IRVING LAYTON (right) have been appointed vice presidents of Pacific Mills, member company of Burlington Industries, New York, N. Y. Both men have been associated with the company's Craft Fabrics Div. since joining Pacific's sales and merchandising operations in December, 1954, and July, 1955, respectively.

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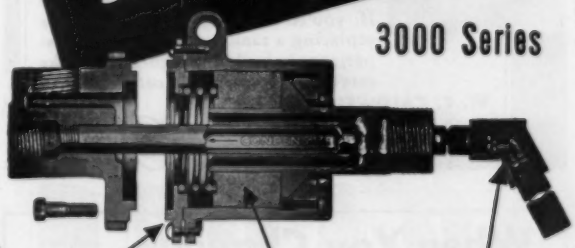

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NEWS ABOUT MEN — Continued

Frank A. Farnell has been named assistant vice president of American & Efird Mills, Inc., Mount Holly, N. C.

J. J. Frier has retired as superintendent of the J. P. Stevens & Co. plant at Whitmire, S. C.

Fred Gilliam, Jr., has joined Kingston Mills, Inc., Cartersville, Ga., as manufacturing manager.

A. H. Grant has joined Morgan Cotton Mills, Inc., Laurel Hill, N. C.

Ernest Greer has been named assistant superintendent of the cotton mill at Ware Shoals Div., Riegel Textile Corp., Ware Shoals, S. C.

Donald P. Halsey has retired as vice president of Callaway Mills, LaGrange, Ga.

J. Ralph Johnson has been promoted to assistant superintendent at Startex Mills, Spartanburg, S. C.

Grady Mullinax has been named designer at the Dunean plant, J. P. Stevens & Co., Inc., Greenville, S. C.

WILLIAM H. JOHNSON has been appointed manager of quality control for Goodyear Tire & Rubber Co.'s textile mills, with headquarters at Cartersville, Ga.

Torrey M. Tyner has been named vice president in charge of production of Glen Raven Silk Mills, Glen Raven, N. C.

Earl A. Wheaton has been named vice president of Cannon Mills, Inc., Kannapolis, N. C.

Textile World OBITUARY

Joseph Love Bridger, 67, president and director of Bladenboro Cotton Mills, Bladenboro, N. C.

John B. Dickson, 67, retired textile analyst for the Textile Div. of U. S. Rubber Co., New York, N. Y.

Kay Dixon, 73, former treasurer of Dixon Mills, Inc., LaGrange, Ga.

Saul F. Dribben, 77, retired president and chairman of the board of Cone Mills, Inc., New York, N. Y.

John Ebenezer Gettys, 75, former president of Victoria Cotton Mill, Rock Hill, S. C.

E. Alan Larter, 53, treasurer of Wannalancit Textile Co., Lowell, Mass.

Robert Paul Masland, 59, first vice president of C. H. Masland & Sons, Carlisle, Pa.

Elmer C. Mowry, 62, secretary-treasurer of Stillwater Worsted Mill, Harrisville, R. I.

Kenneth E. Smith, 52, production manager of the viscose-yarn plants of Beaunit Mills, Inc., Elizabethon, Tenn.

Irving Solomon, 63, retired president of Milford Knitted Sportswear, New York, N. Y.

Lee F. Stockton, 74, former manager of Warrensburg Woolen Co., Warrensburg, N. Y.

Kurt Erich Thuemmler, 51, vice president and general manager of Pilgrim Hosiery Co., Valdese, N. C.

George I. Wolfson, 58, owner of Broadway Knitting Mills, Los Angeles, Calif.

Edgar F. Wagner, 69, secretary and treasurer, Crown Knitting Mills, Mohrsville, Pa.

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1 Wildman 13" Dia., 10 Ga., 8 Feeds
2 S&W 19" Dia., 10 Ga., 8 Feeds
All Machines Equipped with Stop Motions

HALF HOSE

17 Banner Knitting Machines, 3¾ dia. 200 Needles, 48 Ga.
11 Banner Knitting Machines, 2½ dia. 156 Needles, 54 Ga.
4 Banner Knitting Machines, 2¾ dia. 172 Needles, 54 Ga.
3 Banner Knitting Machines, 2¼ dia. 140 Needles, 54 Ga.

500 KIDDE WARP COMPENSATORS

MISC. EQUIPMENT

DESKS, CHAIRS, POSTAL & FLOOR SCALES, CLOCKS, CONE WINDER, ELECTRIC DRILLS & PRESS, GRINDERS, TRAM RAILS, STEEL CABINETS, FANS, EXAMINING MACHINES, AND MANY MORE

28 U. S. TEXTILE FACE DRIVE TWISTERS—HEADLESS

1950-1951 • • D D • • 8" GAUGE • • 160 SPINDLES • • 2 MOTORS • • 440 V, 3 PHASE, 60 CYCLE

40—UNIVERSAL #50 TUBERS
1⅜" Quick Change Adapters
½" ROLLER SALES—STAINLESS TROUGHS
COMPLETE

12—SIPP EASTWOOD REDRAWS
1951 • • SPINDLES • 60 SPINDLES PER
COMPLETE

STAINLESS STEEL PL-90
Mixing Unit
1—300 GAL. S.S. KETTLE & AGITATOR
1—300 GAL. S.S. TANK & HOPPER & ELECTRIC VIBRATION FEED
CENTRIFUGE EVAPORATOR • • 2-800 GAL. S.S. STORAGE TANKS • • S.S. PIPING & TUBING • • COMPLETE

2—1956 ALL STAINLESS STEEL AUTOCLAVES—COMPLETE
HARDLY USED

3—SYKES INSPECTION FRAMES
72" FORWARD & REVERSE
LATE

10—U. S. TEXTILE REDRAWS • • • SPINDLELESS 1951 MODEL

LIKE NEW — 60 SPINDLES PER MACHINE • • 7" TRAVERSE BOBBIN — LIKE NEW

220V • • 60 CYCLES • • 3 PHASE • • MOTORIZED

ONLY PARTIAL LISTING — *SUBJECT TO PRIOR SALE*

Wm. Rabinowitz & Sons

TEXTILE MACHINERY, BOBBINS & SUPPLIES

214 - 222 Hamilton Street Phone HEmlock 3-7497 3-7498 Allentown, Pa.

LIQUIDATION SALE

OF PLANT AT CORNELIUS, N. C.

BY

THACKSTON & REDDING, INC.

702 Montgomery Building Tel. 2-5497 Spartanburg, S. C.

Complete blending unit consisting of: 4—36" blending feeders, 1 Single Deck conveyor, 1 Superior blender, 1 Tinter & Dryer conveyor.

1 Saco Lowell 40" 2 beater picker, No. 5 filters
1 Lap scale
13 Saco Lowell 40" cards, Abington stripping system
11 Lowell 40" cards, Abington stripping system
56 H&B 40" cards, 1947, 1946, 1945, Abbington stripping system
96 Deliveries drawing, common top rolls, 4 roll Medley
12 Howard & Bullough 8x4 slubbers, Highdraft, 144 sp./fr.
32 Saco Lowell spinning frames 3½" ga. 4 roll Highdraft, 228 sp./fr., motor drive
36 H&B spinning frames 4" ga. 240 sp./fr., Highdraft, 4 frames, Whitin Superdraft, motor drive, 7 frames, Pneumafil
16 Atwood 10 B twisters, 7" ga., 4" ring, 100 sp./fr. (Excellent)
1 Singer tape sewing machine
1 Economy waste baling press
1 Universal Roto Coner—cast iron traverse, 100 sp., 3°—30" paper cones
1 Cocker 9 cylinder slasher, stainless steel cylinders, 30" x 60"
2 Cocker high speed warpers and creels
76 C&K C4 looms 78" BS, 4x1 convertible, 20 harness, Gem Head
24 C&K C4 looms 78" BS, 4x4 convertible, 20 harness, Gem Head
50 C&K C4 looms 72" BS, 4x4 convertible, 20 harness, No. 7 Dobby Head
28 C&K CD looms 78" BS, 4x4 convertible, 20 harness, No. 7 Dobby Head
4 C&K C4 looms 78" BS, 4x1 convertible, 20 harness, No. 7 Dobby Head
2 C&K C4 looms, 78" BS, 4x4 convertible, 20 harness, No. 7 Dobby Head
15 C&K C4 looms 78" BS, 4x1 convertible, 20 harness, No. 7 Dobby Head
16 Cloth inspection frames, frosted glass top, fluorescent light underneath, top measurement app. 77½" x 28"
1 Uster tester

LIQUIDATING

MODERN • DYEING • FINISHING • PRINTING • MACHINERY

PARTIAL LIST — WE WELCOME YOUR INQUIRIES

2—7' enclosed dye becks, stainless steel, 60" deep.
12—6' enclosed dye becks, stainless steel.
16—12' enclosed dye becks, stainless steel.
18—Dye jiggs, stainless steel, 50", 56", 60", 70", enclosed and open.
1—Continuous bleach range, stainless steel, jr. size.
1—50" hydraulic calender, 80 ton press, ball bearing.
1—65" hydraulic calender, 40 ton press, ball bearing.
1—50" microset padder, spare set rolls, ball bearing.
2—60" and 66" padders, hydraulic and pneumatic, ball bearing.
1—180 package dyeing machine, stainless steel.
1—500 package dyeing machine, stainless steel.
1—4 port dryer with precipitation.
1—Combination extractor dryer.
3—Enclosed tenter ranges, 90', 100', 120' lengths.
1—60" button breaker, bakelite rolls.
10—Print machines, 2-14 colors, 44"-64" widths.
1—Chrome plating unit, 3-60" rolls at one time.
1—Print slop washer, GL unit, stainless steel.
1—Set 12-70" x 23" dry cans, stainless steel, ball bearing.
1—Palmer, tenter, quetch unit, 60".
1—Tenter frame, 50' x 60", Maxon gas burner.
1—54" embossing calender, 2 roll.

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COMPRESSORS VACUUM PUMPS

For the Finest in Rebuilts

1902 AMERICAN 1957

5 to 20 HP Tank Mounted

137 CFM 100 psi 7x7 Ingersoll ES1
234 CFM 135 psi 9x9 Ing. ES1
283 CFM 35 psi 10x7 Ingersoll ES1
321 CFM 125 psi 10x11 Worth HB
354 CFM Vacuum 14x5 Ingersoll
364 CFM Vacuum 14x6 Ingersoll
437 CFM 40 psi 12x9 Ing. ES New Cylinder
465 CFM 100 psi 12x11 Penn-Gardner
503 CFM 60 psi 14x10 Ing. ER1
528 CFM 100 psi 14x12 Ing. ER1
622 CFM Vacuum 18x6 Ing.
686 CFM 100 psi 14x13 Ingersoll ES1
868 CFM 100 psi 17—10x12 Chicago OCE
877 CFM 100 psi 17—10½x14 Ing. XRB
1016 CFM 55 psi 17x12 Ing. ES
1085 CFM Vacuum 21x9 Worth.
1270 CFM 40 psi 19x13 Ing. ES1
1600 CFM 40 psi Fuller C-300-Syn

JOY WN112B
368 CFM 125 psi 60 HP 3-60-550 16—6x7

American Air Compressor Corp.
Dell & Tex Streets — North Bergen, N. J.

FOR SALE

STAINLESS STEEL TANKS 60 gal. to 10,500 gal. New and Used from stock.
Cloth Washer, Stainless Steel Rolls, 10' long.

PERRY EQUIPMENT CORP.
1430 N. Sixth St. Phila. 22, Pa.
POplar 3-3505

WORSTED MACHINERY - EQUIPMENT - SUPPLIES

LIQUIDATION SALE by FRANK G. W. McKITTRICK CO. at

WANSKUCK MILLS

725 BRANCH AVE. **PROVIDENCE, R. I.**

NOTE: These Plants contain much NEW and MODERN MACHINERY purchased since 1949. Your inspection is invited. A partial list of items below:

TOP DEPT.

1—C. G. Sargent 10' Metal Cone Duster
1—J. C. Corcoran 36" Wool Conveyor System for sorting and to scouring (1950)
3—Scouring Line Units (1st Bowls Sargent 1950)
44—Wstd Cards 2-cyl 48 & 54" wide w/New Harwood Hopper Feed
39—Noble Combs—James Smith, Prince Smith & T-W. 42 to 45 PPI circles
45—Holdsworth Intersecting Gill Boxes
5—Sargent 44" x 3-Bowl Backwasher Units (to 1950)
7—W&S Dual Ball Delivery Pin Drafters, Lot 14 to 27
1—Sargent Elec Top Press
1—Howard Bros. Tuffer Card Clothing Machine
1—Abbington Vac Stripper System, Nash-Hytor H9 Pump w/100-HP 550V motor, piping, etc. 2 tanks.

DRAWING & ROVING

4—W&S Dual Can Del Pin Drafters, Ball Creels. Lot 24A
11—W&S Dual Can Del Pin Drafters, Can Creels. Lot 23-24A
3—W&S Quad Can Del Pin Drafters, Can Creels. Lot 13-14
10—S-L 60-spdl FS4 Rovers 10x5, yr 1950-1
9—S-L 60-spdl F5 Rovers 10x5, yr 1952-3
2—Whitin 48-spdl 12x6 Cone (1946)
30—Cone Rovers 8x4½
2—Whitin 48-spdl 10x5½ Cone

SPINNING, TWISTING, WINDING

24—S-L 200x4x2¾ Mdl SS4 Spg., 1952-3
6—S-L 200x4x2¾ Mdl S4 Spg., 1950-1
1—Whitin Sample Spg Frame 36x4x2¼
46—PS & S-L 200x3½x2¾ Ring Bradford Spg.
15—Whitin BW 200-spdl Spg w/Casablanca Long Draft
12—Whitin BJ Twisters 200x5½x4" Ring, 1949
7—Whitin BJ Twisters 200x4x3" Ring
9—Whitin B Twisters 200x4x3" Ring
4—Collins 200x5x4" Ring
4—Uni Mdl 44 Roto Coners 100-spdl C.I. Rolls, wood cones
6—Foster 100 & 120-spdl Mdl 102 Cone Winders
4—H-W Yarn Conditioners—Steam
1—Foster Mdl 57 Doubler 50-spdl

DRESSING

1—High Speed Dressing Unit. Whitin 112" Drum Reels. Reiner Creel. D&F Warp Compressors.
2—R&L 36x36 S.S. Size Mix Tanks
1—S-L Slasher
2—Whitin-Schweiter 60-spdl Winders w/auto loaders (1948-51)

WEAVING

32—W&S 95" Sulzer Weaving Mchs. 16 w/Filling Mix
108—C&K 80" Mdl W-3 Convertible Looms
108—C&K 80" Mdl W-3 Non-Convertible Looms

FINISHING

4—Hunter 26B Fulling Mills, M.D.
2—R&L Mdl 65 Fulling
2—Hunter 90" Washers, Rubber Rolls
1—Hunter 136" Rubber Roll Speck Dye
1—R&L 12' Rubber Roll Speck Dye
1—Hunter 9-Bowl Cont. Washer
2—Hunter 80" S. S. Open Soapers
1—Arlington 5-Bowl Crab
2—Cook Detwisters
1—Hunter 72x18 Squeeze Roll
1—Hunter 2-Sect 40-72" x 8-Pass Dryer
1—Hunter Carbonizing Range
1—R&L 4-string Semi-Cont. Dry Mill
1—Cloth Conveyor System
1—P&W 72" x 4-cyl Brush Sander
2—P&W 72" x 3-blade Davidson Shears
1—Gessner 72" Mdl PD20 Rotary Press
1—Gessner Hydrolizer
1—P&W 72x36 Semi-Decater #9357
2—Windle Dblg & Open Winding
1—Gessner Versimatic 72x36 Semi-Decater
1—A&G Cloth Conditioner
1—P&W 72" Auto Perch (New)
20—Sewing Machines

TOP DYE — ALL S.S.

2—Sample Top Dye Kettles w/Hoists
2—2-spdl Pressure Top Dye w/Hoists
1—6-spdl Pressure Top Dye w/Hoist
4—10-spdl Pressure Top Dye w/Hoists

PIECE DYE — ALL S.S.

5—Sample Kettles 18", 24" & 28"
2—Hunter 48" Encl. Controls
1—Hunter 24" x 2-Pc. Encl. Controls
7—JH & RH 10' Encl. Controls
2—JH & R&L 8' Encl. Controls

MISCELLANEOUS

14—Toledo Dormant Floor Scales
3—Exact Wgt Scales (for Cans)
Fibre Cans 12x36 & 15x36
2—Pacific Eveness Testers
1—Scott Yarn Tester
2—MacBeth BX838 & BX1014 Lamps
3—Lewis-Shepard Elec Fork Lifts
1—Mercury Elec Fork Lift
3—Automatic Trans. Platform Trucks
Lot Air Compressors—hi & lo pressure from ½-HP tank mounted to 75-HP horizontal

OAKLAND PLANT

Burrillville, R. I.

Complete Worsted Weaving Unit. 120-C&K 80" Mdl W-3 Looms. 120-spdls Schweiter, Dressing, Spooling, Mending, Machine Shop, etc.

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— FOR SALE BY —

FRANK G. W. McKITTRICK CO.

78 Fletcher Street *GLenview 8-6391* **Lowell, Mass.**

TEXTILE MACHINERY DEALERS

FOR SALE—Good Used Spinning Frames At Low Cost

(taken in trade by Roberts Company)

40 Spinning Frames, Whitin Box Head, 3½ and 3¼ inch gauge

16 frames—3½ inch gauge by 264 spindles
24 frames—3¼ inch gauge by 252 spindles

Whitin Long Draft for up to 1½" cotton and 2" synthetic. Whitin Medium Gravity Spindles for 9¼" bobbins and 8" traverse. Tape Drive with Ball Bearing Cylinders, 2" rings, complete with bobbins and skewers.

21 Spinning Frames, Saco Lowell Box Head, 3½ inch gauge 240 spindles

SL Roth Long Draft, 2¼" ring, 7" traverse.

14 Spinning Frames, Fales & Jenks Box Head, 3¼ inch gauge by 264 spindles

Whitin Long Draft, Ball Bearing Cylinders, 1⅞" rings, Tape Drive.

If desired, these frames can be delivered and erected in your mill and started up by our skilled crew.

All the above frames are wide gauge, equipped with Tape Drive and Long Draft. They are good buys and will produce good results as they are. They are also suitable for partial or full scale modernization, now or later, including High Draft Changeovers, Ball Bearing Spindles and increased Package Sizes, Open Type Creels and Suction Cleaning, all manufactured and serviced by Roberts Company.

ROBERTS COMPANY, Sanford, N.C.

Phone SPring 4-8811 — **Cable Address: Roberts**

We also have available completely modernized Roberts Model 55R Frames in gauges from 3 inch to 4 inch and the all-new, All-Ball Bearing equipped Roberts M-1 Spinning Frames. See our advertisement on Page 9.

---

6 SMITH DRUM
SKEIN DYEING MACH. STAINLESS & MONEL 7-12 & 20 ARMS

1 yd. S. S. EXTRACTOR

40 ATWOOD—10B
1 - 1½ & 2 LB

6 U.S. DOUBLERS 4"-R

15 ATWOOD & SIPP
& U. S. HI SPEED REDRAWS

COMPLETE MILLS

20,000 spdle—U.S.
HD Less Pkg—Twisters
U. S. Vertical Spoolers
All Mach used less than 1 year

16—ATWOOD-5-501
& ALL AUX MACH & SUPPLIES—
2 LB—HD LESS PKG.

2 SIPP CONICAL SPOOL WINDERS
6" TRAV. SPINDLESS

300 UNIVERSAL CONERS
FOR NYLON - RAYON - SILK

4 FIDELITY REELERS

1 S.S. AUTOCLAVE
9 x 12—1955

NEW & USED LOOM PARTS—S-6—S-3—C-4

BOBBINS—SPOOLS—QUILLS—*All Sizes & Types*

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425 LEHIGH ST. ALLENTOWN PA. Phone 3-7545

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1—3 color—60"
1—3 color—45"
1—6 color—32"
4—48" Pantographs—For export only

MAR-DAY TEXTILES
52-60 BERKSHIRE AVE. PATERSON 2, N. J.
MU 4-5132

ANTICIPATE FOR THE FALL

1—Clark Mixing Picker, 24" wide, 8 bar cyl.—NEW
1—Cocker Slasher, 1949, 7 can, Reliance Drive
1—Cocker Warper, 1949, & 840-end creel
1—Sipp Warper, 1948, EN8039, Cotton System
2—Abbott Winders, 100 & 120 sp., 1948, 1950
1—Abbott Radial Quilter, 12 sp.
2—Model L Bobbin Stripper & Hoists
4—Model K Bobbin Strippers
1—#50 Cone Winder, Gear Gainer, 3°30' Cones
1—Worthington 10x10 Air Comp. & Aftercooler
200—Parks-Cramer Humidification Atomizers
6—Cloth Inspecting Machines—All types
2—Shawmut Reed Cleaning Machines—1 Rebuilt
2—B/C Portable Tying Machines: 2-LC, 1-LS
116—C & K W2 Looms, 80" & 82", 4x1 convertible
248—XD 46" Looms, Dobby
5—Johnson Slashers, 1946, 1948, 1948, 7-can
1—1/R Air Compressor 12x8, ERI
2—Conditioning Ovens, 1 Lyden, 1 H & W

SUPPLIES

1,000—12"x36" Roving Cans, rolled & metal top
140—Loom motors, 1 hp, 1800, 550 V, A/C B.B.
5,000—Stop Motion Rods, also complete motions
10,000,000—Dropwires, all types
4,000—Loom Motors, all types, ½ to 1½ hp.
24,000—NC727, G758 Armstrong Spinning Cots
100,000—7⅛" #6 Butt Loom Bobbins, excellent
2 sets—New Taylor Recording Controls
1,000—Pick Clocks, 3 shift & 2 shift V/R
10,000—Heddles & Frames, 10", 11", 12", 13", 14"
15,000—Canvas & Rubberized Lug Straps, NEW
600—Drawtex Heddle Frames & 1 million heddles
100,000—Draper Impregnated Bobbins, 7⅛", #5 Butt
200—Stafford Thread Cutters, with Box Fronts
2,000—Stafford Cutter Box Fronts, various Nos.
300—Midget Feelers
500—Whip Rolls, regular wood & fluted types
50—Draper Batteries, complete for 8¾ bobbins

MACHINERY SALES CORPORATION
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DYEING EQUIPMENT FOR SALE

One (1) practically new Klauder-Weldon-Giles 200 pound dye machine for hosiery and sweaters, equipped with 220/440 volt, 3-phase 1½ H.P. motor and reducer.

One (1) practically new Cummings Landau 36" x 36" washer with automatic shutoff, thermometer, timer, safety latches.

Equipment located at THE CHEMSTRAND CORPORATION, DECATUR, ALABAMA.
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USED TEXTILE EQUIPMENT
FOR SALE

Item #
1S—3-12 Spindle Units Universal #50 Coners—practically new
6S—2 Abbott Winder Automatic Boarding Machines—excellent
17S—12 Warner Swasey 80" Looms—8 cams—Draw-tex frames & heddles M. D. complete—practically new
5G—D&F Wool Horizontal Warper #1941 Complete with Beam-Off Machine
13S—66 Draper Beams 22" Flanges 76" between flanges. 99 tooth 6 pitch gear.
10S—1—1942 Saco-Lowell, serial #3911 Section Beam Beamer—66½" drum length—32" diameter beam flange capacity.
11N—360 Cargotainers, collapsible, plated steel wire, size 40"x28"x22" deep—good.
12N—8 New Union Street Lighting Standards: design 216, cat. #F236-A1 complete—height 25'3".
13N—1500 ft. New Copper Cable — 3 cond/No. 2VCL/2500 volts.
14N—4000 ft. New Copper Cable — 1 cond/No. 8VCL/2500 volts.
2EG—15—1 Ton Chain Hoist, 6" I Beams & Trolleys.
6E—Victrola Record Cabinet—steel 500 capacity.
7E—Optometrist or Physician's chair—White Porcelain with Black Leather Seat and Head Rest.
8E—Tennant 1½ H.P. Floor Finishing Machine 12" model "C".
11S—15 Pairs Mossberg 24" dia. Loom Beam Flanges.

COLLINS & AIKMAN CORP.
ROXBORO, N. C.
Thos. Dixon, Jr. — Phone 4301

STOCK OPENING UNIT

consisting of P&S 36" Ceiling Condenser, American B.B. Blower, size 350, Bramwell 48" Extended Feed, Hunter 2 Cyl. 48" Wool Opener, Bramwell 54" extended Hopper Feed, Parks-Cramer Turbo Spray Oiling System. This unit is in very good condition and set up as operated. To be sold as a unit or individual items.

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SPECIAL

4—James Hunter 8 String Totally Enclosed S.S. Dye Kettles, 220/60/3
1—Sprayco Humidification System, 88 Heads, Copper Piping, with 2 20 H.p. Quincy Compressors
1—P&W 72" x 60" Semidecator, Complete
1—P&W Despecking Machine with Blowers
3—C&M Fearnaught-type 48" Hair Pickers, Metal Face, with Feeds

JOHN J. McCLOSKEY, INC.
Manufacturers and Dealers in Textile Machinery
W. Knight Ave. & P.R.S.L., Collingswood, N. J.

FOR SALE
PRINTING MACHINE

3 color 58" wide Rice Barton style printing machine, completely equipped.
Priced right for sale.
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Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

STAINLESS STEEL
PACKAGE DYEING MACHINES

55 tube, 81 tube, 120 tube. Each machine complete with two carriers.
Write, wire or phone . . . **RE 9-2322**
CALEDONIAN DYE WORKS
Emerald & Westmoreland Sts. Phila. 34, Pa.

FOR IMMEDIATE DELIVERY

FINISHING MACHINERY

1—**Morrison Duplex Sanforizing Range:** Equipped with 50" face x 84" dia. cylinder and 36" dia., Blanket drying cylinder. Complete with pup tenter, stainless steel top opening clips, electric shoes and 48" Cole Sprayer. Range, DC, M.D. with converter.

5—**Rice Barton and Fales Cloth Printing Machines:** 5 to 8 colors. Equipped with **Mt. Hope Scrays, Dewey and Almy Blanket Washers, Stainless Steel Blanket Drying Cans, Morrison 48" x 60" Stainless Steel Cloth Drying Cans.** All motor driven by General Electric Model ACA adjustable speed motors, 550/3/60. Blanket Washers and Dryers, Scrays, Stainless Steel Drying Cans and motor drives installed from 1953 to 1956.

2—**50" Birch Bros. Vacuum Extractor and Scutcher.** Brass slotted tube, single brass beater, 2-brass scrimp rolls, brass governor, 2 rubber pulling rolls. Swing Folders ball bearing throughout. Driven by 5 HP, GE 550/3/60 motor equipped with Nash-Hytor Vacuum Pump, Size L-6 driven by 30 HP, 550/3/60 motor. Complete with Expansion Tanks.

1—**50" Butterworth Haveg Acid Ager,** with stainless steel ball bearing top and bottom rolls; stainless steel steam chest; stainless steel acid vaporizers; 3 swing folders; stainless steel acid storage tanks; exhaust fans; Temp. controls and recorder units. Also complete with DC Motor Generator Set 550/3/60, 1950 Model.

2—**Windsor and Jerauld Clip Tenter Frames:** Opening to approx. 56" wide x 90' long with SS clips and inserts. Enclosed in **Proctor & Schwartz Double Tenter Housing.**

1—**98" Proctor & Schwartz Air Lay Dryer** with 14 individually motor driven fans, Conveyor with cork facing, 98" wide. Fin type heating coils. Driven through Variable Speed 550/3/60 motor. Overall box dimensions, 26'1" long x 15' wide x 12' high. Serial #K2496.

COTTON MACHINERY

1—**Steel Waste Feeder** 24" wide, Year 1953, with motor & switch.

3—**Lummus Enclosed Steel Blending Feeders** 38½" wide, Year 1953, with motor and switch.

1—**Lummus Enclosed Steel Mixing Feeder** 38½" wide, Year 1953, with motor and switch.

1—**16" Feed Table,** 25' Long, Eriez Magnet, Year 1949, with 2 H.P., 550 V motor, switch and drive.

1—**Aldrich No. 4 Opener,** Year 1953, with motor and switch.

2—**Aldrich 2-Beater 40" single process Pickers** with Aldrich Synchronizers, Year 1953, motors and switches.

1—**Aldrich Condenser,** Year 1953, motor and switch.

1—**Whitin Rake Distributor** with motor and switch.

1—**Kitson Overflow Hopper,** 38" wide with motor and switch.

1—**Kirkman & Dixon 24" Single Cylinder Waste Machine** with 24" Eriez Magnet, Year 1950, motor and switch.

1—**Kirkman & Dixon 24" Waste Hopper,** Year 1951.

6—**Whitin Model L Cards,** 27" Doffers, 12" Coilers, Spindle Back, 110/120 wire, Ball Bearing Comb Boxes, Abington Stripping attachment, Year 1951.

2—**Whitin Sliver Lap Machines,** 12" laps, motor and switch.

2—**Whitin Ribbon Lap Machines,** 12" laps, Ball Bearing Head Blocks.

8—**Saco & Pettee Drawing Frames,** composition top rolls, 6 deliveries per frame, 12" Coilers.

2—**Saco & Pettee Slubbers,** 64 spindles each, 12 x 6.

1—**Barber Colman Stationary Tying In Machine,** Model F, Size 4, Serial No. 1412, with stands and motor generator unit.

1—**Hermas 42" Shearing Machine,** 4 blades, motor driven with fan.

1—**Curtis & Marble 42" Folder,** 1 yard fold, Serial No. 67711, Year 1950, with 1 HP, 550 V motor and drive.

1—**Bushnell Cloth Press** with reversible motor and switch.

1—**Cloth Inspecting Table** with motor and switch.

1—**Terrell Bobbin and Quill Hoist** No. 53 with reversible motor and switch.

1—**Nash Quill Sander and Polisher,** Model N-279, Year 1951, Motor and Switch.

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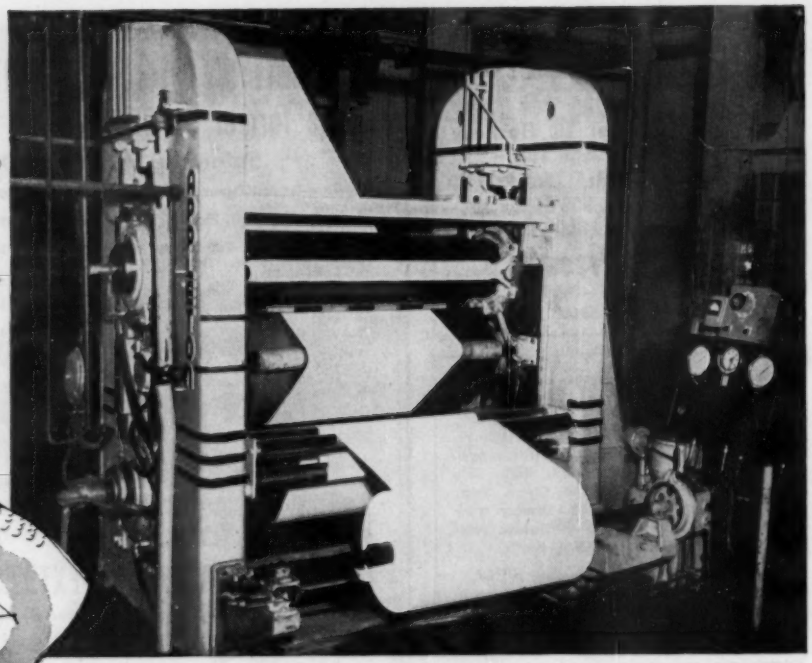

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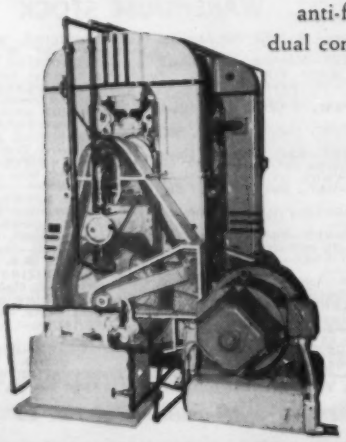

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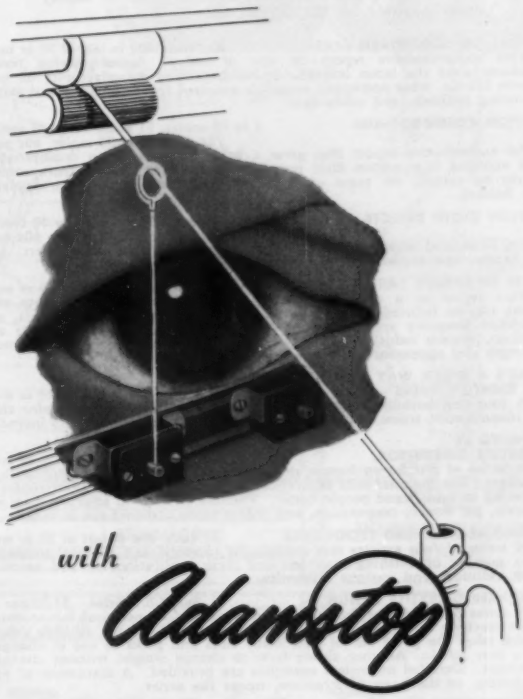

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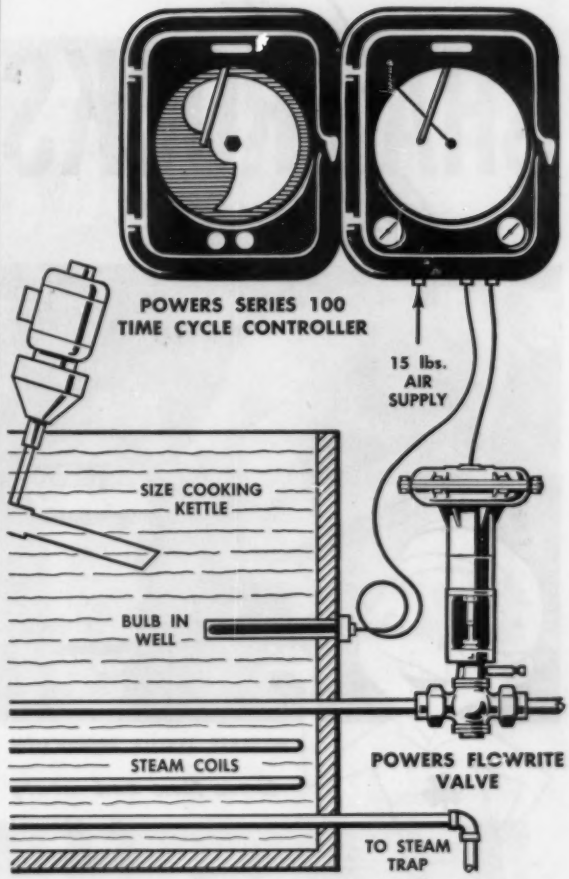
Graton & Knight Co., Inc.	67	Q
Guider Specialty Co.	258	E
Hartford Machine Screw Co.	212	T
Haskell-Dawes Mach. Co., Inc.	246	T
Herr Mfg. Co.	74	T
Hinde & Dauch	221	P
Howard Bros.	13	T
Hungerford & Terry, Inc.	267	B
Hunt Machine Co., Rodney	156	E
Ideal Industries, Inc.	94	T
Industrial Rayon Corp.	52-53, 69	G
Industrie-Werke-Karlsruhe	39	E
Ingersoll-Rand Co.	204	H
International Salt Co., Inc.	213	C E
Ives Co., L. T.	84	L

Jacobs Northern & Southern Div., E. H.	200	L RT
Jenkins' Sons, Inc., M. W.	254	E
Jiffy Textile Marker Co.	266	E I R
Johnson Corp., The	269	H
Jones Motrola Corp.	246	K
Kaiser Aluminum & Chemical Sales Inc.	92-93	O
Keever Starch Co.	225	C
Kidde Mfg. Co., Inc.	68, 251	R
Klauder-Weldon-Giles Mach. Co.	10	E
Kleinewefers Sons, Joh.	63	E
Kuljian Corp., The	266	N
Lincoln Engineering Co.	41	M
Link-Belt Co.	7	Q
Lockwood Greene Engineers, Inc.	271	N
Loom Service Co.	270	N
Loper Co., Ralph E.	268	N
Lubriplate Div., Fiske Bros. Refining Co.	263	M
Ludell Mfg. Co.	199	E
Lunkenheimer Co., The	97	H
Main & Sons, Inc., Robert A.	270	T
Manhattan Rubber Div.	86	Q
Maple Flooring Manufacturers Assoc.	257	B
M-B Products Co.	252	H
McBride, Ed. J.	6	R
Meese, Inc.	284	P
Miller Corp., Harry	181	C
Minneapolis-Honeywell Reg. Co. Industrial Div.	90	K
Mount Hope Machinery Co.	218	E
Muller, Franz	75	E
Multi-Tex Prods. Corp.	261	G
Nash Co., J. M.	232	RT
National Aniline Div. Allied Chem. & Dye Corp.	26-27	C
National Ring Traveler Co.	228	T
Norgren Co., C. A.	11	M
Oakite Prods., Inc.	269	C
Onyx Oil & Chemical Co.	15	C
Ordnance Gauge Co.	216	L
Perfecting Service Co.	248	H
Perkins & Son, Inc., B. F.	238	E
Pneumafil Corp.	16	D T
Portland Co., The	216	E L RT
Powell Co., William	28	H
Powell Valves	28	H
Powers Regulator Co.	283	K
Precision Gear & Machine Co.	260	Q
Proctor & Schwartz Inc.	96	E
Raybestos-Manhattan Inc. Manhattan Rubber Div.	86	Q
Refined Products Co.	2nd Cover	C
Reiner Inc., Robert	233	L
Reliance Elec. & Eng'g. Co.	77	F Q
Ridge Tool Co.	217	H
Roberts Co.	9	P
Rodney Hunt Mach. Co.	156	E
Rohm & Haas Co.	160	C
Ryerson & Son Inc., J. T.	244	O
Saco-Lowell Shops	34, 162	T
Sandoz, Inc.	219	C
Sargent's Sons Corp., C. G.	226	T
Scott Testers, Inc.	259	K
Semet-Solvay Petrochemical Div. Allied Chem. & Dye Corp.	203	C
Simco Co.	217	E L RT
Sinclair Refining Co.	95	M
Sirrine Co., J. E.	3rd Cover	N
SKF Industries, Inc.	80	O Q
Societe Alsacienne De Constructions Mecaniques	166	T
Solvay Process Div. Allied Chem. & Dye Corp.	185	C
Sonoco Prods. Co.	40	T
Southern Shuttle Div. Steel Heddle Mfg. Co.	173	R



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Dept. 957 Skokie 18, Illinois

POWERS
PROCESS CONTROL

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Stauffer Chem. Co.	179	C
Steel Heddle Mfg. Co.	173	R
Stein Hall & Co., Inc.	259	C
Stephens-Adamson Mfg. Co.	165	O...Q
Stowe-Woodward, Inc.	55	E
Strandberg Eng'g. Laboratories, Inc.	250	K
Supreme Knitting Mach. Co.	227	L
Taylor Instrument Cos.	72	K
Taylor, Stiles & Co.	230	T
Texas Co., The	4th Cover	M
Textile Banking Co.	210	N
Textile Machine Works	100	L
Toledo Scale Co.	242	K
Tompkins Bros.	244	L
Torrington Co., The (Needles)	229	L
Turbo Machine Co.	177	L
Union Carbide Chemicals Co. Div. of Union Carbide Corp.	206	C
U. S. Steel Co.	249	O
Universal Winding Co.	182	T
Uster Corp.	247	K
Veeder-Root, Inc.	91	K
Wallerstein Co., Inc.	271	C
Warner & Swasey Co.	71	RT
Westinghouse Electric Corp.	60-61, 207	F
Motors & Controls	54	F...Q
West Penn Power Co.	239	N
West Point Foundry & Machine Co.	2	R
Whitin Machine Works	47	T
Wildman-Jacquard Co.	31	L
Wolf & Co., Jacques	235	C
Wood's Sons Co., The T. B.	240	Q
Wright Machinery Co. Div. of Sperry Rand Corp.	266	K
Yale & Towne Mfg. Co.	197	P

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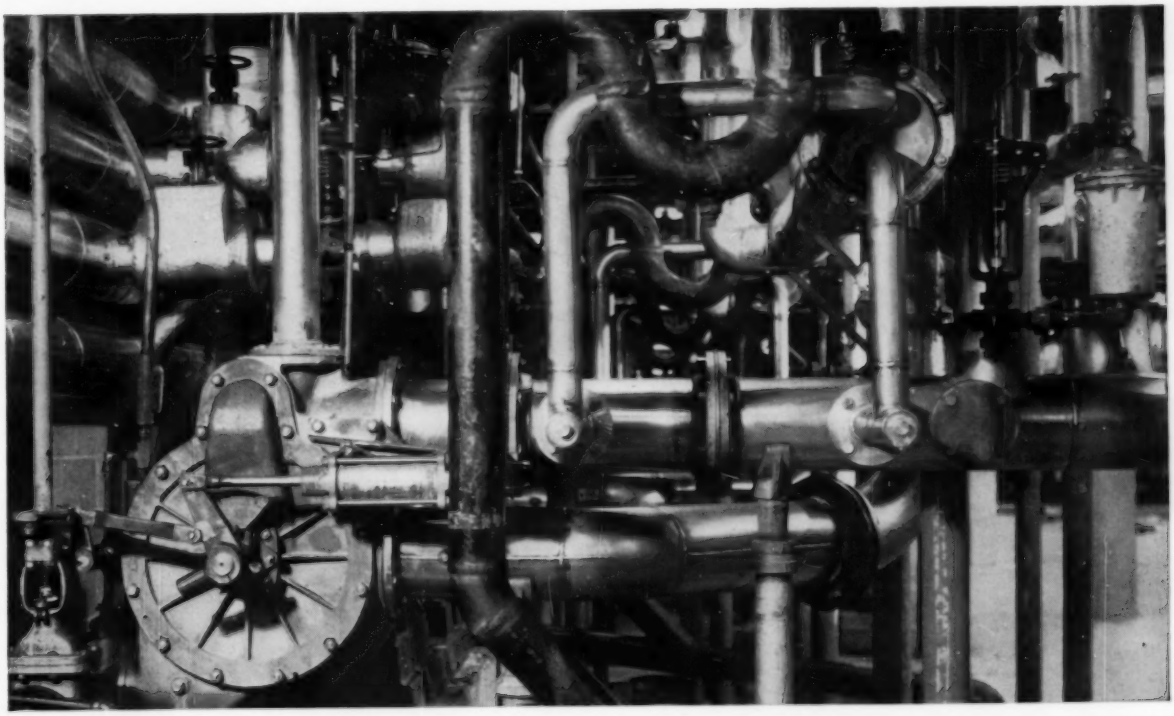

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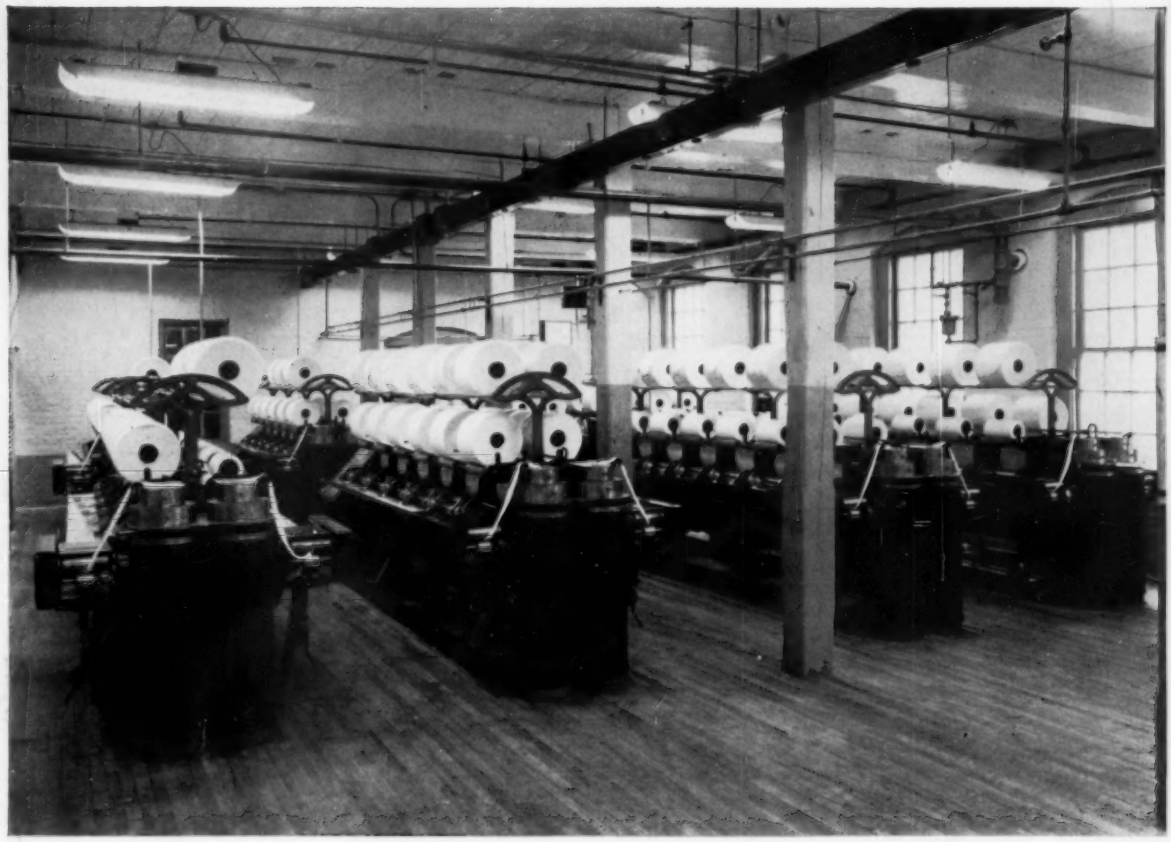

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